E▫A▫S

USER'S GUIDE

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BURK Technology

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E▫A▫S USER'S GUIDE

Contents

INTRODUCTION

This document is a User's Guide for the Burk Technology **E▫A▫S**, an Emergency Alert System designed to encode and decode **E▫A▫S** messages -- and to streamline the generation, transmission, reception, and management of **E▫A▫S** traffic by automating these operations to the greatest extent possible.

The User's Guide provides the information required for installing and configuring the system (see "Installation and Configuration," p. 2), a fundamental description of the **E▫A▫S** message and its components (see "The **E▫A▫S** Message," p. 9), and a complete set of instructions for operating the system (see "**E▫A▫S** Operator's Guide," p. 13). Further information, including lists of **E▫A▫S** codes and instructions for downloading software updates, appear in the Appendices.

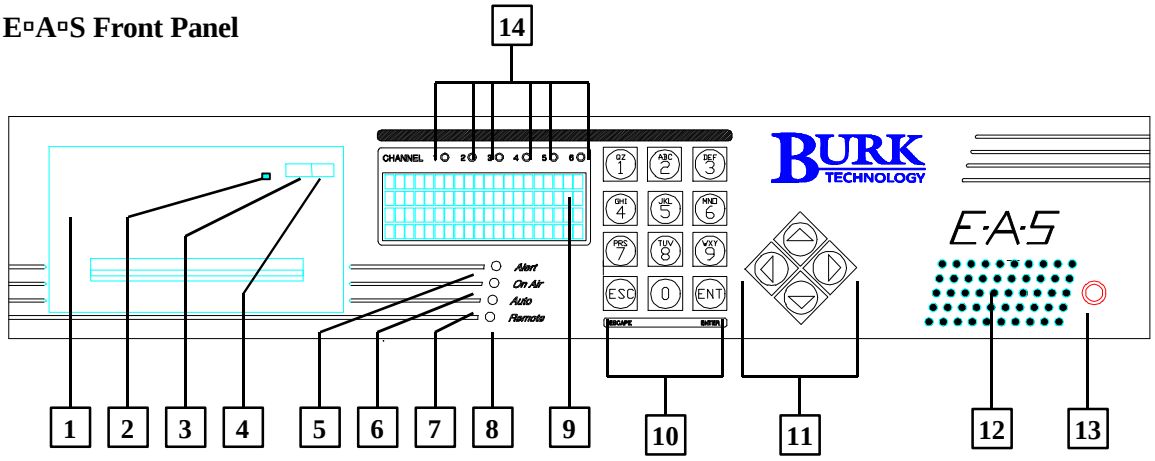
The first part of the Operator's Guide, entitled "Setting Up" (p.13), is structured as a tutorial. In the process of guiding the user through system setup, it introduces and exercises all of the types of menu selections, input, and operational settings that will be encountered in regular use of the system.

For most users, this manual should quickly become simply a reference document, consulted primarily for those less frequently used tasks and procedures. Because **E▫A▫S** is a menu-based system, with straightforward and convenient functional groupings of tasks and options, and is virtually self-prompting throughout, the acquaintance with system procedures and convention afforded by the tutorial-style setup will make the typical operator proficient in a very short time.

INSTALLATION AND CONFIGURATION

This section contains installation information, featuring notes and illustrations on the arrangement and functions of the front and back panel components, the procedure for configuring the system. Consult the following section, "**E▫A▫S** Operator's Guide," (p. 13) for getting the system into operation.

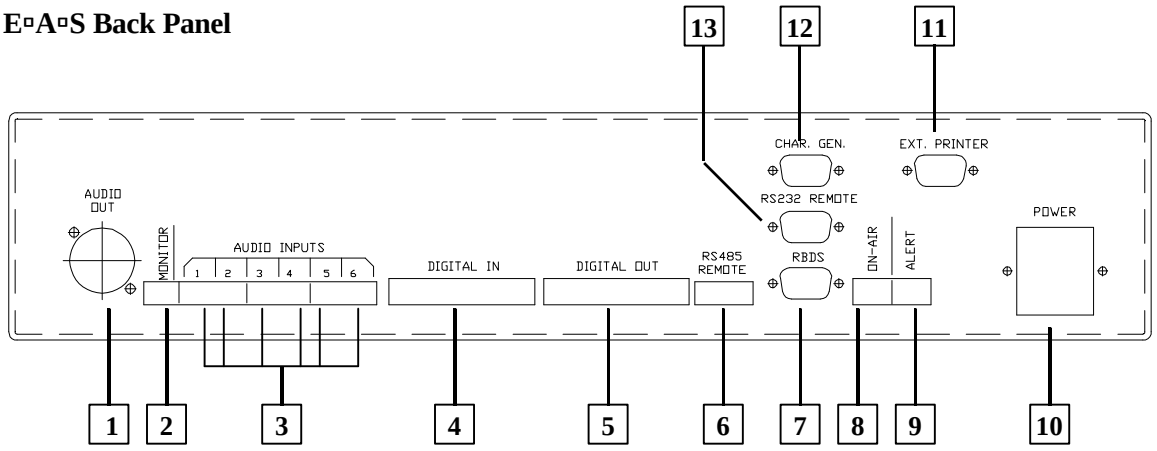
E▫A▫S Front Panel



#	ID	Functions / Features
1	Dot Matrix Microprinter	Provides hard copy of both received and transmitted **E▫A▫S** messages for station log; produces full text interpretation as well as ASCII version of header for live messages; prints out headers stored in Receive Log and Transmit Log; enabled/disabled by SEL switch and remote control; prints 24 5x7 dot-matrix characters per line
2	Printer On/Off-Line Indicator (LED)	Printer on-line when lit
3	Printer SELect Switch	Toggles printer between on-line and off-line state; when pressed together with LF Switch (#4) while unit off-line, initiates printer self-test
4	Printer Line Feed Switch	Toggles continuous paper feed on and off when unit is off-line; when pressed together with SEL Switch (#3), also in off-line state, initiates printer self-test
5	Alert Indicator (LED)	When lit, signifies incoming **E▫A▫S** message; its relay also triggers external Alert indicator (if configured)
6	On-Air Indicator (LED)	Indicates **E▫A▫S** currently transmitting; program interrupt in effect

7	Auto Mode Indicator (LED)	Shows state of Auto/Manual system mode toggle; when lit, indicates system in Auto mode, wherein qualified messages are immediately auto-forwarded; when unlit, indicates manual mode, wherein auto-forward qualified messages are subject to delayed forwarding
8	Remote Mode Indicator (LED)	Indicates state of Remote/Local system mode toggle; when lit, indicates system enabled for remote and local control through back-panel remote interface; when unlit, indicates local (front-panel) control only
9	LCD Screen	Control panel 4x20-character backlit display unit, for all system input, output, and operations menus; displays message Alerts, incoming **E▫A▫S** message headers and text interpretations, outgoing message summaries, graphical monitoring gauges, cues, prompts, and all command and data entry
10	Alphanumeric & Command Keypad	Membrane keypad, telephonic layout, with ESCape and ENTer keys in * and # positions, respectively; primary user control interface for system; along with control keys (#11), implements all commands, operational settings, and data entry
11	Control Key Cluster	Group of four membrane keys, labeled with directional arrows (◂ , ▴ , ▸ , ▾), referred to as LEFT, UP, RIGHT, and DOWN; cluster keys control motion of cursor within LCD screen, select certain options, and toggle various system settings
12	Speaker (Auxiliary Audio)	Unit studio monitor, playing audio from currently monitored channel designated as **E▫A▫S** source; plays audio of incoming and outgoing messages; can be configured with external audio monitor connected through back panel
13	Volume Control (Auxiliary Audio)	Controls speaker (#12) volume (independent of station main audio output)
14	Audio Channel Indicators (LEDs)	Panel of indicators, numbered 1 through 6, corresponding to system audio input channels; when steadily lit, indicates presence of signal on that channel; when flashing, indicates incoming **E▫A▫S** message on that channel

E▫A▫S Back Panel



#	Label	ID	Description / Connections
1	J5	Main Audio Output	**E▫A▫S** audio to transmitter switch
2	J4	Auxiliary Audio Output	**E▫A▫S** audio/Receiver audio to studio
3	J1, J2, J3	Audio Input Channels 1-6	Monitor audio inputs (a minimum of two are FCC required; note also that internal recording of **E▫A▫S** Voice Messages occurs over audio channel 6; to use it in monitoring function requires switching inputs)
4	J21	Digital Inputs (8)	Discrete (switch) studio control; pinouts are: 1 (Send Header) 5 Send RWT 2 Send EOM 6 (Spare) 3 (Review Msg) 7 Mute 4 (Delete Msg) 8 (Monitor Audio Channel) ( ) = Presently unimplemented
5	J6	Digital Outputs (8)	Discrete (remote) indicators; pinouts are: 1 On-Air 5 EAN 2 Alert 6 EAT 3 Auto mode 7 Auto Fwd 4 Remote mode 8 (Spare)
6	J16	RS-485	Multi-channel system remote control
7	J9	RS-232 -- RBDS	**E▫A▫S** Radio Broadcast Data System input/output
8	J19	On-Air Relay	Main transmitter control
9	J20	Alert Relay	Main annunciator/indicator control
10	-	Power Connection	AC input 115 VAC
11	-	RS-232 -- External Printer	Serial port to external printer; can be connected in lieu of micro printer
12	J7	RS-232 -- Character Generator	Text output to character generator
13	J8	RS-232 -- Remote Control	Computer/Terminal connection

Installation Procedure

The **E▫A▫S** unit requires a 2-unit (3-1/2") rack space and should be located as close to eye level as possible to provide a suitable viewing angle for the LCD display and to permit convenient fingertip access to the keypad. Normally, the unit will be located in the control room so that the operator is able to respond to Alerts easily. Both the monitor speaker and the printer may be muted whenever the studio microphone is open (via Digital Input 7 -- see **E▫A▫S** Back Panel description).

The main audio output of the system is an XLR-3M connector. All other connectors are Phoenix Combicon connectors for which mating cable connectors are provided. Phoenix combicon connectors are unique in that they are a plug-in terminal strap that can be prepared for use with no other tools than a wire stripper and a screwdriver.

Connecting Audio Inputs

Each of the six audio inputs may be connected to a receiver or other source of **E▫A▫S** audio. Channel 6 doubles as a line input for recording **E▫A▫S** messages. It is most convenient to connect this input directly to a console output for recording, unless all six channels are required for monitoring assignments.

Audio inputs are balanced, therefore it is highly desirable to use two-wire twisted pair or shielded cables for the audio inputs. Beldon 8450 (solid) or 8451 (stranded) are appropriate. If the receivers are unbalanced, it is recommended that you use shielded cables. Attach audio inputs in pairs to a Combicon connector (each connector holds two channels) and plug in.

Each audio input must be adjusted to produce the proper level so that the recorded audio messages will be reproduced at the same level as the internally generated tones. To view the input level for each channel, select **READY** menu item 5 -- Monitor Audio Level, and select the desired channel using the cursor keys (see "Selecting the Channel for Audio Monitoring," p. 61). The proper input level is set when the gauge indicates '0' on normal program peaks. The Burk Technology model RX-4 receiver provides a level adjustment for each channel. If you are using a non-adjustable audio source, it may be necessary to install an attenuation pad to keep from overdriving the input. The proper level is approximately -6dBm.

Verify that each input is connected properly and that the level is set correctly before proceeding. Excessive input levels will produce distortion and may compromise the ability of the unit to respond properly to alerts. Each channel should be clearly audible on the monitor speaker when it is selected.

Connecting the Main Output

The main output of the **E▫A▫S** unit must be connected to the desired audio insertion point in the air chain. This is most commonly done by connecting the output of the unit to an LX-1 or LX-4 audio switcher or other switchable air chain audio input.

An XLR-3F connector should be wired with pin 1 connected to the shield and pins 2 and 3 connected to (+) and (-) respectively. The output level is adjustable from the front panel for any desired program line level from -12dBm to +12dBm. See "Setting the On-Air Audio," (p.41)

Connecting the On-Air Relay

The On-Air Relay is used to control the switching of the **E▫A▫S** unit audio output. Any message that is sent will activate this relay for the duration of the alert. In the case of a live voice encoded message, the On-Air relay will only be activated during the header and attention signal, and again during the EOM tones. This allows normal program audio to be used for the voice announcement portion of the Alert. In the case of a recorded voice message, the On-Air relay will remain energized for the duration of the Alert, as all audio will be originating in the unit.

The relay contacts must be connected to the switcher control input so that normal program audio is replaced with **E▫A▫S** audio during the alert. If the **E▫A▫S** audio is instead intended to be routed through the control room console (not recommended) then it will not be necessary to connect the On-Air Relay.

Connect the On-Air relay to the unit contacts via J19 using a supplied Combicon connector.

The foregoing comprise the minimum connections necessary to operate the **E▫A▫S** unit.

Connecting Additional Inputs and Outputs

For installations where the monitor speaker is not convenient to the operator, an additional monitor may be connected using the line level Auxiliary Audio Output at J4.

An Alert annunciator can be controlled by connecting a lamp or audible signal to a suitable power source and switching the signal using the dry contacts labeled Alert Relay at J20. These contacts are rated 1 amp at 125 volts.

Remote digital inputs and outputs may be connected to J21 and J6 respectively. The outputs are open-collector and will handle up to 24vdc at 500ma. Inputs are activated by switching to ground by direct contact or open collector switch. Refer to "**E▫A▫S** Back Panel" for specific control signal connections.

If desired, an external printer may be connected in lieu of the built-in printer. To accomplish this, remove the top cover and unscrew the DB-9 connector on the back of the printer. Remove the EXT PRINTER cover plate on the rear panel and reinstall the DB-9 connector in this cutout. Connect a serial printer using a mating DB-9 connector.

To drive a character generator or other display device, an ASCII output is available at the CHAR GEN connector, J9. This output is similar to the printer output, except that the line feed characters have been removed. Note that most character generators will require code conversion from the normal ASCII output provided here. This is most commonly done using a PC running software provided by the character generator manufacturer.

A computer may be connected to the DB-9 connector labeled RS232 REMOTE, J8. All registered users will receive an update disk and complete instructions for using this port.

Extended control of the **E▫A▫S** unit is possible using the **E▫A▫S**-X extension unit. This unit is identical in appearance to the **E▫A▫S** unit, and is connected via the RS485 REMOTE connector, J16. Multiple **E▫A▫S**-X units may be connected in a daisy chain to provide control from numerous control points.

Enabling/Disabling the Printer

The built-in printer is provided in order to produce hard copy of all **E▫A▫S** messages received or sent, for the purpose of maintaining the station log. Because at some times, in some studio environments, it may be undesirable for the printer to be audible while it's operating, it can be taken off-line by the SEL switch on its front panel.

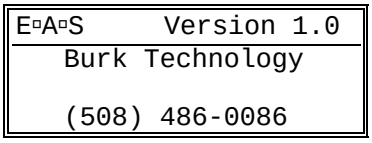
When on-line, the printer will automatically print out hard copy of all incoming Alerts and their text interpretations at the time they arrive. It will do the same for **E▫A▫S** transmissions originated or forwarded by you, at the time they are sent, and will print out message reviews upon command, for example, when a message is received while the system is dealing with a higher-priority function; in such an event, the information will be stored in the Receive Log, and can be printed out subsequently, when the system is free.)

Off-line, the printer will not print at all. However, the station log can be maintained by enabling the printer at some convenient time and printing the essential header information from the system's internal message logs (Receive and Transmit -- see "Reviewing Messages and Logs").

For basic printer maintenence, such as loading paper and changing ribbons, consult pp. 7-10 of the "DPN-230 Series Microprinter User's manual," which has been shipped with your **E▫A▫S** unit. Effects of the printer control switches are discussed in "**E▫A▫S** Front Panel," p. 2 of the manual.

Powering Up

Note that the unit features no power switch. It is meant to be powered up at all times, always scanning its assigned channels when not involved in receiving or sending **E▫A▫S** message, or under operator control for encoding or setup tasks. Putting the system on-line is simply a matter of plugging it in. After performing a self-test, the unit displays a **VERSION** screen:



Then it comes up in the Ready state.

THE EAS MESSAGE

The essence of **E▫A▫S** operation concerns the reception, transmission, encoding, and interpretation of the **E▫A▫S** Message; all of its functions, and the tasks the **E▫A▫S** operator performs, are organized around the processing of this signal. In this section we provide a brief description of the formal **E▫A▫S** Message and the kind of condensed information encapsulated in its format. Please refer to the diagram on the following page for a schematic rendering of the components and structure of the **E▫A▫S** Message.

EAS Message Specifications

The **E▫A▫S** Message consists of four main parts, listed here in order of transmission:

- **Preamble plus EAS Header Code** (3 repetitions, each followed by a 1-second pause)
- **EBS 2-Tone Audio Attention Signal** (4-25 seconds in duration; presently required for all **E▫A▫S** messages except Required Weekly Tests)
- **Voice Message**, which may also be video or text (optional inclusion; where present, must be 2 minutes or less in duration)
- **Preamble plus EAS End-Of-Message (EOM) Codes** (3 repetitions, each followed by a 1-second pause)

The Preamble, Header, and EOM are transmitted via Audio Frequency Shift Keyed (AFSK) modulation, at a rate of 520.83 bits/sec. Digital expression is achieved with a Mark frequency of 2083.3 Hz and a Space frequency of 1562.5 Hz., each having a duration of 1.92 msec.

Characters sent are formatted as ASCII 7-bit characters according to ANSI standard X3.4-1977. ASCII dash (-) and plus (+) symbols figure as separators between header elements, and their use in an **E▫A▫S** message is restricted to this purpose only. Where operator-entered text appears in an **E▫A▫S** header, as in a station call sign, the "slash" character (/) -- which is ASCII 47 -- must be used as a separator, and blank or unused character spaces must contain the ASCII space character.

The EBS Attention Signal, transmitted following the Header, is comprised of two simultaneously transmitted tones, one at 853 Hz, the other at 960 Hz.

EAS Header Format

If the **E▫A▫S** message is the essence of **E▫A▫S** operation, then the **E▫A▫S** Header is the essence of the message. A single header burst, of approximately a second or so in duration, contains <u>all</u> the information pertinent to the Emergency Alert; the entire text interpretation of the Alert message is generated from it.

The order and timing of the components of the **E▫A▫S** Header are illustrated in the diagram on the following page. Let's look in a little more detail at their content:

[PREAMBLE] A bit stream consisting of sixteen consecutive bytes of AB hexadecimal (i.e., 10101011). This burst of regular, repetitive AFSK modulation furnishes a distinctive audio signature for the **E▫A▫S** decoding device to recognize and lock onto. It also serves to set Automatic Gain Control

and establish asynchronous clocking cycles in the decoder. The [PREAMBLE] precedes each repetition of the Header, and each repetition of the EOM.

ZCZC- These are literal characters, sent as ASCII, to signal the decoding device that the ensuing transmission is also in ASCII code.

EAS Header

[PREAMBLE]	ZCZC-	ORG-	EEE-	PSSCCC-	+TTTT-	JJJHHMM-	LLLLLLLL-
16 bytes of 10001001 (AB hex)	*4-chr* ASCII Start Signal*	*3-chr Origin Code*	*3-chr Event Code*	*6-chr FIPS Location Code(s) (up to 31)*	*4-chr Duration Code*	*7-chr Date/Time Stamp (Days+UCT)*	*8-chr Station ID or Call Sign*

RESIDENT ON SYSTEM

PRESET BY USER ON SYSTEM SETUP

UPDATED BY SYSTEM FROM USER PRESET

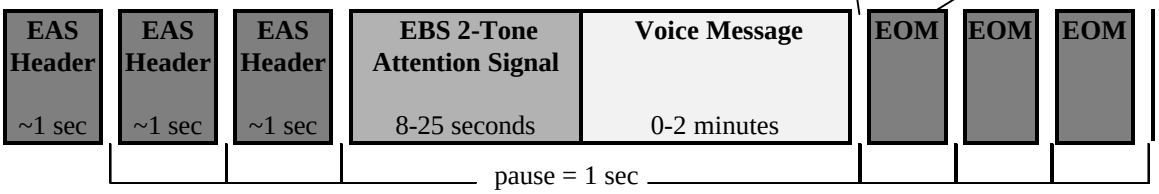
PROVIDED BY USER DURING ENCODING

ASSEMBLED BY SYSTEM AT TRANSMIT TIME

* - and + are delimiting characters supplied by system

EAS Terminator

[PREAMBLE]	NNNN
16 bytes of 10001001 (AB hex)	*4-chr End-Of-Message Code (EOM)*



EAS Message

ORG- Stands for Originator, and represents one of the five 3-letter codes (found in Appendix A) that designate initiators of **E▫A▫S** Messages (e.g., "WXR," for National Weather Service).

EEE- Stands for Event, and represents one of the thirty-two presently authorized 3-letter codes (found in Appendix B) that indicated the nature of the Alert that has occasioned the message (e.g., "FLW," for Flood Warning).

PSSCCC- Designates a Location, and represents a 6-character code for a particular region. The last five characters (SSCCC) are the standard FIPS (Federal Information Processing System) code for a particular county, where "SS" represents the 2-digit code for the state or territory, and "CCC" represents a 3-digit code for the county. The first character, "P," is a single digit designating a county subdivision (i.e., "1" indicates Northwest portion, "2" indicates North Central, etc.). Thus, an example of a complete Location Code might be "135001," where the "35" indicates the state of New Mexico, the "001" designates Bernalillo County, and the initial "1" specifies the Northwestern corner of the county.

A "CCC" code of "000" is interpreted to mean the entire state or territory that is indicated by the "SS" portion of the code. (Subdivision designators are not supported in the case of whole states). For example, the location code "025000" specifies the entire state of Massachusetts.

The full listing of FIPS codes for the U.S. and Territories appears in Appendix C (a subdivision interpretation chart appears in "Setting the System to Auto-Forward for Selected Locations," p. 47). The location designated by the FIPS number is the geographical area affected by the Alert; there may be up to 31 such locations specified in the message.

+TTTT- Stands for Time (or Duration), and represents the hours and minutes (in the form "hhmm") of the time period for which the Alert is effective. This value proceeds in 15-minute increments for the first hour of the effective time period, and in 30-minute increments thereafter. Thus "0015" (fifteen minutes), "0030" (thirty minutes), "0045" (forty-five minutes), "0100" (one hour), and "0130" (one hour and thirty minutes) are all valid Durations. Note the "+" preceding the "TTTT" in the code designation: this symbol indicates the end of the Locations list, which immediately precedes this item; since more than one Location Code is permitted, and each individual one is succeeded by a minus ("-"), the plus ("+") enables the decoding system to tell when the Locations list is terminated and prevents it from interpreting the Duration field as another Location.

JJJHHMM- Furnishes the Date/Time stamp of the release of the message by the Originator. The "JJJ" segment is a 3-digit code representing the date in Julian Calendar days from the start of the current year; "HHMM" is a 4-digit number representing the hours and minutes from midnight in Universal Coordinated Time (i.e., "military time"). Thus, "0321405" designates 2:05 PM on February 1st of the current year ("032" = thirty-second day of the year, "14" = fourteen hours past midnight, "05" = minutes of that hour).

LLLLLLLL- Stands for the call sign or other identifier of the organization transmitting or re-transmitting (forwarding) the message. This is a user-supplied item, which may be no longer than 8 characters and must use "/" as an internal separator, with ASCII spaces for blank characters (e.g., "KLOG/FM ").

Now that you know exactly what constitutes an **E▫A▫S** transmission, let's go on to setting up the system and seeing how it processes these messages.

E▫A▫S OPERATOR'S GUIDE

This section of the manual provides the operating instructions for the Burk Technology **E▫A▫S**, organized according to the various tasks the operator will need to perform: Setting Up, Receiving and Forwarding **E▫A▫S** Messages, Conducting Required Tests, Encoding and Sending Messages, and Reviewing Messages and Logs.

To start learning how to use the **E▫A▫S** you need to have installed and powered up the system (as indicated in "Installation and Configuration Notes," p. 2) and you should be familiar with -- or review -- the form and contents of an **E▫A▫S** message (see "The **E▫A▫S** Message," p. 9).

Setting Up

In describing how to set up the **E▫A▫S** with the essential information it needs to transmit and receive messages, we'll also be covering the basic conventions of how to control the system via the keypad -- with menu selection, commands, and other input.

The READY Menu

Once the **E▫A▫S** system has been installed and powered up, and the Self-Test and Version screens have been displayed, the following menu appears on the LCD screen on the front panel:

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
```

This is the **READY** menu, and it indicates that the system is ready to receive **E▫A▫S** transmissions or to accept operator input from the keypad. The screen will always return to this display after a message has been fully processed, or the operator exits the other menus after completing a task (sometimes automatically, after a 5-minute timeout, if the operator hasn't explicitly made a return). Any operation that you do carry out will be initiated by making a selection from this menu.

One operation we'll mention right away is the ESCcape function. It's controlled by the ESC key, located in the lower left-hand corner of the Keypad, which is just to the right of the screen. We'll discuss its effects in more detail later, but for now all you need to know is that pressing ESC one or more times from anywhere in the system will take you back to the **READY** menu, and undo any inadvertent keystrokes you might have made.

In following the demonstrations and setup operations described over the remainder of this section, should you happen to press a key other than the one indicated in the instructions, and find that your screen display doesn't match the example in the manual, just press ESC until the **READY** menu appears on the screen (or until you reach a familiar point in the demonstration) and continue from there. Once you're

back at the top of the **READY** menu, the ESC key has no further effect, so you needn't worry about pressing it too many times.

And now let's examine the **READY** menu in more detail.

The Headline

Let's look first at the top line of the menu, which from now on we'll refer to as the Headline. (Notice that the black divider separating the Headline from the lower three lines of text is not part of the display, but rather inscribed on the screen itself.) Every menu you'll see features a Headline, and in every case but one it carries the title of the menu, for reference purposes. The **READY** menu is that one exception; it displays the date and time instead. Note that the date is in standard format (mm-dd-yy -- for month, day, and year), and so is the time (hh:mm:ss -- for hours, minutes, and seconds). The time is always displayed as Universal Coordinated Time (formerly known as "military time"), meaning that PM hours are distinguished by being greater than 12. For example, 06:29:00 is 6:29 AM in Universal time, while 18:29:00 is 6:29 PM (i.e., 12 + 6 = 18). Hours therefore have a range of 00 (midnight) to 23 (11 PM).

As you're looking at the LCD screen on your system right now, the date and time may or may not be the correct ones -- those are among the values we'll be setting up as we proceed through this section. But once set, the date and time advance automatically, whether displayed or not, and time-stamping of messages is automatic as well.

Notice that at the extreme right of the Headline there are a pair of symbols: ▲ and ▼, one pointing up, the other pointing down. These indicate that within this menu, motion up and down is possible -- by means of the Control Keys which are similarly marked. Some other menus feature the symbols ◀ and ▶, which indicate possible motion left and right, again by means of their respective Control Keys. Certain menus display all four symbols, and those allow motion in any direction; other menus display none of the directional symbols, and in such a case no motion is possible. When present, the symbols usually (but not always) appear on the Headline.

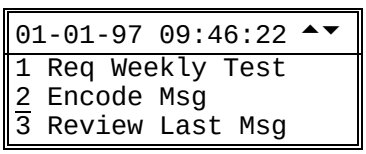
So, if motion is allowed in the **READY** menu, what exactly is it that's moving?

Cursor Motion and Scrolling

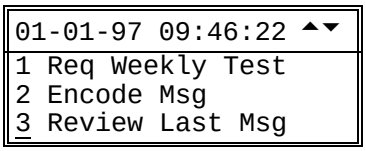
Notice the small bar underlining the 1 at the beginning of the second line. That underline is the cursor, and it marks the location where things will happen on the screen -- selections, inputs, and so forth. The cursor is what does the moving, and it's in turn moved by the Control Keys, which are located in the diamond-shaped cluster to the right of the alphanumeric (telephone-style) Keypad. We'll designate these keys as LEFT (◀), RIGHT (▶), UP (▲), and DOWN (▼), according to the direction their symbols are pointing.

Now, there's actually a bit more to this particular menu than meets the eye, literally, and we can start to get some practical experience of the system by showing you just what that is.

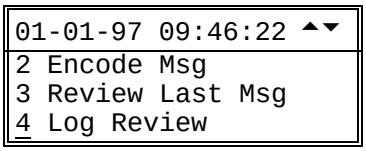
Press the DOWN (▼) key, once. Notice what happens on the display screen:



The cursor has moved down to the next item. Now press the DOWN (▼) key again:



Now the cursor indicates item 3. So press the DOWN (▼) key once more:

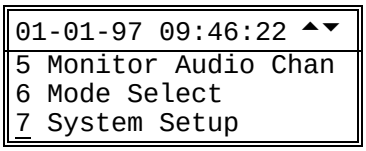


Notice that, except for the Headline, the entire display has changed. Line 1 has disappeared and lines 2 and 3 have moved upward to reveal yet another line beneath, and the cursor is now in that line. This process is called scrolling, and it can be used any time a menu is too long for the screen to display all at one time.

As you can see, the Headline does not scroll; it always remains in place and is independent of the movements of the menu contents. The cursor cannot even move into the Headline (except on a certain few menus where an input field is located there -- but we'll discuss those later).

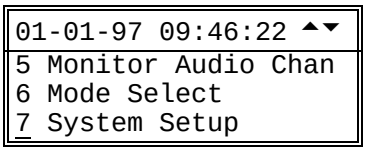
Because a menu can move past the effective "window" of the screen, and the first item in the menu may not always be at the top of the display (nor the last item always shown at the bottom), we'll adopt the following convention in referring to the lines beneath the Headline: The very first line below the Headline is the top displayed line, the line immediately underneath that is the middle displayed line, and the lowermost line of the screen is -- you guessed it -- the bottom displayed line. We'll use this nomenclature when we need to indicate a position on the screen, regardless of which numbered item is displayed there.

Now, if you press the DOWN (▼) key three more times, the result is:

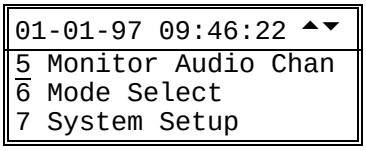


Notice that once the cursor reaches the bottom displayed line, it stays there through repeated strokes of the DOWN (▼) key, always indicating the newest item scrolled to (you'll find it will exhibit similar behavior in scrolling up, once it reaches the top displayed line).

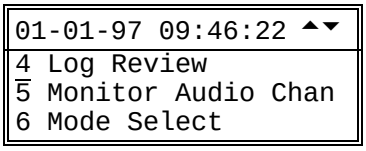
Now press the DOWN (▼) key one last time:



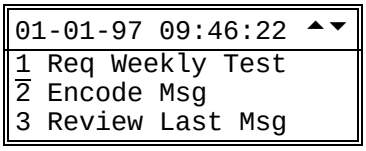
What happens is -- nothing. Item 7 is the last item in the menu (as well as being the bottom displayed line) and the cursor will go no further in that direction -- keying DOWN (▼) no longer has any effect. But now press the UP (▲) key, twice:



The cursor indicates item 5 again, but without moving the screen window. As we mentioned earlier, the cursor will always move as far as it can, up or down, within the currently displayed screen, before it resorts to scrolling a new line in. Press UP (▲) once more and you will see that new line displayed.



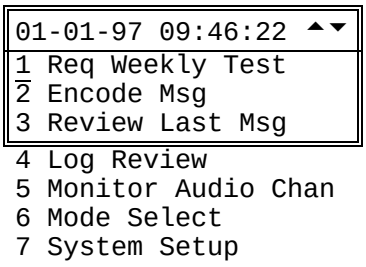
Now, if you press UP (▲) three more times, the screen scrolls up three lines to get to the topmost item, and the **READY** menu is displayed in its original state:



Just as you can't scroll down past the last item in the menu, you can't scroll up past the first. Press the UP (▲) key several times -- the cursor won't move into the Headline; it stays at item 1. This will be true of all menus in the system -- you've reached the upper or lower limits of the selections when the screen will no longer scroll. A three-item menu won't scroll at all.

(While we're at it, try pressing the LEFT (◀) and RIGHT (▶) Control Keys. The cursor doesn't move in either direction. In this menu, the cursor is restricted to indicating selection items in a list, one above the other. In certain other menus we'll access shortly -- menus where the symbols ◀ and ▶ appear -- motion left and right is possible, but the screen never scrolls laterally.)

So in actuality, the entire **READY** menu looks something like this, with the dot-outlined portion off-screen and not visible unless you scroll to it:



From now on in this manual, we'll use this format to illustrate an oversized menu, and you can always assume that scrolling will reveal the dot-outlined, off-screen selections.

As the primary entry point to the system, the **READY** menu provides convenient top-level access to the system functions you'll be most concerned with in everyday operation: sending Required Weekly Tests, reviewing messages and logs, selecting which audio channel to monitor in-studio, and setting the system modes (Manual vs. Automatic, Remote vs. Local). The **READY** menu also provides access to the two other menu structures in the system, with their less frequently used functions: message-encoding message and system setup.

Making Selections from Menus

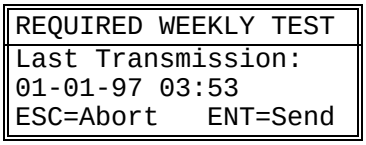
The actual selections of menu items are controlled by keys on the alphanumeric Keypad, as are commands and other kinds of input. For menus in particular, you can make a selection in either of two ways:

- With the cursor indicating the desired item, press the ENT (for Enter) key

or

- Press the number key on the keypad that corresponds to the number of the menu item

For example, on the **READY** menu currently displayed, the cursor is indicating item 1 -- Required Weekly Test. Press the ENT key, which is in the lower right-hand corner of the keypad, and observe what happens:



You've selected the command screen for the Required Weekly Test (RWT). We won't be sending one of those just yet, so let's return to the **READY** menu. Note that the last line of this screen begins with "ESC=Abort." We noted briefly above that pressing ESC one or more times from another screen would bring you back to the **READY** menu. The more general effect of ESC is this: You can exit any selected menu or command screen, and return to the menu from which you made the selection, by pressing the ESC (for Escape) key. (In the few cases which are exceptions to this rule, the effects of ESC are clearly

indicated.) In virtually any instance where you've made a selection by mistake, or changed your mind about the option, you can undo your choice by pressing the ESC key.

So now press ESC -- in the lower left-hand corner of the keypad -- and you'll return to the **READY** menu, with the cursor indicating item 1 again. Now scroll down to item 4 -- Log Review, moving the cursor with the DOWN (▼) key. When the cursor indicates the 4, press ENT to select:

```
LOG REVIEW
1 Receive Log
2 Transmit Log
3 Erase Logs
```

You've selected the **LOG REVIEW** menu by scrolling to an off-screen item. Even when an item isn't visible to select, you can always move the cursor to it to bring it into view, and then press ENT.

Now press ESC to return again to the **READY** menu. This screen doesn't mention anything about the ESC key, but as we noted above, it works anyway, in the absence of an indication to the contrary. Now let's demonstrate the alternative method of selecting menu options -- direct entry.

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
```

Note that the cursor is back at item 1, even though we moved it to item 4 to make the previous selection. (This will always occur on return to the **READY** menu.)

Without moving the cursor from the first item, press "3" on the keypad:

```
 REVIEW LAST MSG
 No message

 ESC=Rtn          _
```

Now we're at the **REVIEW LAST MSG** screen, which was option 3 on the preceding menu. Pressing a single key for the numbered option brought us here, without cursor-marking the selection. Now let's ESC back again to **READY** for one more demonstration:

Press "5" on the keypad (even though it's not a displayed option) and watch what happens:

```
MONITOR AUDIO CHAN
Channel: [OFF] ▲▼

ESC=Abort ENT=Select
```

We've come to the screen for the **MONITOR AUDIO CHAN** menu, even though that option wasn't visible on the **READY** menu, as displayed. You can always select an off-screen option this way without scrolling to it, as long as you know it's there. (And if you key a number for a non-existent option -- like "0," for example, or "8" in the **READY** menu -- it has no effect; the system simply ignores the keystroke and awaits a permissible selection.)

Making Corrections to Input

Let's ESC back to the **READY** menu just once more, and look at how to make corrections to input without resorting to ESC.

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
```

Press "7" to select **SYSTEM SETUP**, and watch what happens:

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [***]
ESC=Abort ENT=Accept
```

The setup of essential operating parameters in the system is password-protected, and when you select System Setup, the system prompts you for this password. We'll be installing your own personally-selected passwords (for System Setup and Encoding Messages) in the next section of this manual. For now, and for purposes of illustration, we'll use the *default* password (that is, the one supplied with the system). That password is the 3-digit sequence "111," and entering it here will give us some introductory experience with numerical input to **E▫A▫S.**

Note that the screen comes up with the cursor indicating the leftmost of three asterisks (*) enclosed in square brackets. The brackets contain what is known as a *field* -- a region of the screen reserved for the input of letters or numbers (i.e., alphanumeric input). In this system, square brackets will always delineate a field for accepting input (or displaying its interpretation).

Now press the key labeled "1" on the Keypad.

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [1**]
ESC=Abort ENT=Accept
```

The digit "1" appears, replacing the asterisk at the cursor position, and the cursor itself moves automatically to the next character. In various input situations, the cursor will move in this way when you key in a character, and we'll refer to that motion as a cursor *advance*.

Now press "1" again.

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [11*]
ESC=Abort ENT=Accept
```

The same thing happens, with the digit "1" replacing the second asterisk, and the cursor advancing one character position to the right.

Press "1" a third time.

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [111]
ESC=Abort ENT=Accept
```

Once again, the asterisk is replaced by a "1," but the cursor doesn't advance; it's come to the right-hand end of the field and it won't move outside of it. This will always be the way that the cursor behaves inside a field, no matter how many characters wide the field might be; it will never move around the screen at large, and pressing a cursor motion key that would appear to take the cursor outside that field limit will simply have no effect.

Try pressing the RIGHT (▸) key. The cursor does not move any further to the right. And now press the LEFT (◂) key repeatedly. The cursor will move back to the leftmost position in the field, but no further. Using the RIGHT (▸) key, position the cursor at the middle "1" in the field.

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [111]
ESC=Abort ENT=Accept
```

Now press the "2" key and observe what happens:

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [121]
ESC=Abort ENT=Accept
```

A "2" replaces the "1," and the cursor advances again. This demonstrates how corrections are made to the input in a field. The input is not actually entered until you press the ENT key (for Enter); you can make corrections at any time before entry by moving the cursor to the character to be edited, and then pressing the correct key. Now let's correct the error we intentionally made, by using the LEFT (◂) key to move the cursor to indicate the "2," then pressing "1."

```
SYSTEM SETUP PASSWD
Enter System Passwd
       [111]
ESC=Abort ENT=Accept
```

The correct password is restored. Nothing happens. That's because, as we noted briefly above, as well as being used to select a menu item, the ENT key is used to execute a command, or implement a setting. In this manual, we'll always make a distinction between *keying* -- which means simply to press appropriate keypad keys, for input -- and *entering* -- which means to follow the keying (from either Cursor Keys or Keypad) with ENT, which causes the input to take effect. So, let's ENTer the password.

Press ENT. The default password you've keyed now takes effect, and we arrive at the selection we made, pre-password -- the **SYSTEM SETUP** menu:

```
SYSTEM SETUP      ▲▼
1 Set AutoFwd Codes
2 Test/Calibrate
3 Set Date/Time
```

Notice that on this menu screen, as with any other, the initial display has the cursor indicating item 1.

The SYSTEM SETUP Menu

Let's remain in the **SYSTEM SETUP** menu now, since it displays the options we'll be selecting to set nearly all the essential operating parameters for the system. As we go about setting up, you should be aware of several important characteristics of the system:

- Certain station-specific information needs to be set up as soon as you go on-line with the system -- your station location, ID, and Originator Code. Without these settings, the headers of the messages you forward will not be correct or complete. For this reason, setting the station-specific information will be the first setup task to be performed.

- Your **E▫A▫S** unit is capable of *receiving* messages at any time after it has been correctly installed and powered up. It will not, however, automatically forward (i.e. re-transmit) any message except for EANs (National Emergency Alerts) and RMTs (Required Monthly Tests) until you establish your own auto-forwarding criteria in System Setup.

- Should an incoming message be received by the **E▫A▫S** unit while you are engaged in setting up, your setup will be interrupted, the message will be processed, and the system will return to the **READY** state following processing. If this occurs, simply consult "Receiving and Forwarding Messages" (p.

63) to determine how the message should be handled. You can then resume the setup process by re-selecting the task that was interrupted. You'll need to re-do only that task; all other setups performed up to that point will have been saved.

- The system is provided with a 5-minute inactivity timeout as a protection against its being left unattended in mid-task. If five minutes pass without any keys being pressed, the system will return to the **READY** menu; the task which was in progress when the timeout occurred will be interrupted in the same fashion as though you had pressed ESC (i.e. with no settings or selections taking effect).

  Normally, 5 minutes between keystrokes provides more than ample time to accomplish any setup task in the system (most will require only a few seconds). However, if the system should time out and revert to the **READY** menu, before you have completed a given operation, simply re-select the menu that was on display at that time. You'll need to re-do only the task that was interrupted.

  (The one exception to the 5-minute timeout involves the setting of tones and relays. Since calibration operations may require console adjustments to be made elsewhere in the studio, tones and relays remain on indefinitely when turned on, and the menus involved remain on display. In such instances you must remember to exit those menus when the calibrations are complete. An incoming message, however, will reset the system to **READY** status regardless. See "Audio Parameters and Indicators," p. 35).

Now, to start setting up, let's take a look at what the **SYSTEM SETUP** menu <u>really</u> looks like:

```
SYSTEM SETUP      ▲▼
1 Set AutoFwd Codes
2 Test/Calibrate
3 Set Date/Time
4 Set Station Info
5 Set Passwords
6 Set Tone Duration
7 Set Up RWT Voice
```

Once again, the dot-enclosed extension shows the menu items that are hidden from initial view. The settings which are performed from this menu involve:

- the kinds of events and specific locations for which automatic re-transmission (Auto-forwarding) should occur
- testing of tones and relays, and calibration of main audio output, as well as relative levels of AFSK and EBS tones
- date/time display and date/time-stamping
- station-specific information which will be automatically included in all messages encoded/forwarded by you
- setting of personalized passwords for system setup and message encoding
- duration of the EBS 2-tone Attention Signal as it is broadcast by you

- options for including a 30-second Administrative Message, live or recorded, to accompany a Required Weekly Test

Some of these settings must be performed immediately, while others are less critical:

The settings for menu items 3 and 4, relating to date/time values, and station-specific information for encoding, must be performed for the system to become fully operational. Please set this information, as described in the first two procedures below, at the earliest opportunity, even as you read this section, if possible.

Similarly, as menu item 2 involves the setting of broadcast audio levels for the main output of the unit, and the relative amplitude of the mandated tones, timely setup is advisable.

Menu item 1 establishes Auto-Forwarding criteria, wherein you select those Events and Locations which, if mentioned in a received **E▫A▫S** message, can trigger automatic re-transmission of the message. The system will function without these items being specified, but no Automatic Forwarding can occur until you do specify them.

Until you access the settings in menu item 5, both passwords (System and User) will remain at their default settings of "111".

Menu item 7 enables you to specify whether a Required Weekly Test will be transmitted with no voice message, with a live voice message up to 30-seconds in length, or a recorded one of similar duration. It also provides the opportunity to record that message, if the last option is chosen.

Menu item 6 relates to the duration of the Attention Signal; you need to access that item only if you wish to change the duration from its default setting of 8 seconds, or to turn off the tones altogether (after the mandate for their inclusion expires).

Four of the seven options require scrolling to view, and the directional symbols in the upper right indicate that only the UP (▲) and DOWN (▼) Control Keys will have an effect in this menu. We're going to move around the menu a bit, setting the more critical items first. We'll start with Set Station Info, so Select item 4 -- either by pressing the "4" key on the keypad, or by placing the cursor at item 4 using the DOWN (▼) key, then pressing ENT.

Henceforth in this manual, whenever we use the term "Select," it will mean to access a menu option using whichever method you choose -- numbered key, or cursor-marking plus ENT -- it's up to you. And remember, if you make an error in Selecting , you can undo the choice and return to the menu from which you Selected it simply by pressing ESC -- at which point you can Select again.

We'll also adopt another convention, from this point on, that will make easier for you to find your way to a particular menu or task and back again -- for future reference, when we're not walking through the system step-by-step from the top down (as we're doing now in this tutorial). At the beginning of each procedure we'll specify the Access path, and at the end we'll note the Return path, as in the following examples, where we show the menu title (in bold), the option chosen or input entered from that menu, and point to the next step on the path:

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD**/password ⇒ **SYSTEM SETUP**/4

(This would specify the path to the **SET STATION INFO** menu: Choose **READY** menu option 7, which leads to the **SYSTEM SETUP PASSWD** screen, where you input the password, which leads to the **SYSTEM SETUP** menu, from which you select option 4.)

Access: ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

(And this specifies the pathway back from **SET STATION INFO**: Press ESC to return to the **SYSTEM SETUP** menu; Press ESC again to get back to the **READY** menu -- you don't have a password on the way out.)

Set Station Info -- Setting Your Station Originator Code, Location, and ID

So, we've selected option 4 to bring up the **SET STATION INFO** menu:

```
SET STATION INFO
1 Set Sta ORG
2 Set Sta Loc
3 Set Station ID
```

Setting Your Station Originator Code (ORG-)

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 4 ⇒ **SET STATION INFO**

1. Select option 1 for the **SET STA ORG CODE** screen: "EAS" is the default state, with its interpreter, "Broadcast Station," displayed in a square-bracked field. (If you have previously set the ORG to a different value, then that value is displayed.)

```
SET STA ORG CODE
ORG: [EAS] ▲▼
[Broadcast Station ]
ESC=Abort ENT=Accept
```

2. The list of all possible ORG (Originator) options (with their interpretations) are as follows:

PEP	Primary Entry Point
EAN	Emergency Action Notification Network
EAS	Broadcast Station
CIV	Civil Authorities
WXR	National Weather Service

Repeatedly pressing the DOWN (▼) key displays each ORG code and its interpretation in the succession listed above. Pressing the UP (▲) key reverses the display order.

Switch the display in the above manner until the correct ORG code for your organization appears on-screen.

Note, however, that the two topmost originator types, PEP and EAN, are not accesible via the UP (▲) key. These two kinds of originators are the designated sources for EAN and EAT messages, those involving a national-level emergency. Origination of EANs and EATs is restricted, and to guard against casual or inadvertent selection of these messsage types, access to the designated Originator and Event codes has been restricted in the system.

If your organization is PEP or an EAN, then follow the bullet steps to gain access. (If it is not, it's truly in your organization's best interests to leave these EAN/EAT items off your encoding message, as the possibility of an accidental send, and thus a serious error, are not inconsiderable.)

- Press ESC twice to reach the **READY** menu.
- Key the following sequence: ESC, RIGHT (▶), RIGHT (▶), ESC, LEFT (◀), LEFT (◀), LEFT (◀), ESC.
- At the display of the **FACTORY SETUP** menu, key the password "683" and press ENT.
- At the display of the **EAN/PEP ORG SETUP** screen, press the RIGHT (▶) key:
- The field which is set to "OFF" will switch to "ON."
- Press ENT to accept the setting and return to the **READY** menu.
- Select option 7, re-enter the "111" password, and choose option 4 again for **SET STATION INFO**.
- Then select option 1, and press UP (▲) once for EAN, twice for PEP.

3. Press ENT to implement that setting and exit to the **SET STATION INFO** menu (for next procedure).

NOTE: You can exit this menu at any time by pressing ESC, but the ORG code for your organization will remain at the default setting of "EAS -- Broadcast Station" (or whatever the most recent setting may have been, if different).

Return: ENT *or* ESC ⇒ **SET STATION INFO** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting Your Station Location Code (SSCCC-)

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 4 ⇒ **SET STATION INFO**

1. Select option 2. The **SET STA LOC CODE** screen is displayed, with the cursor indicating "01001" in a bracketed field, with the interpretation line immediately below reading "AL:Autauga." (If you have previously set a value for Station Location, then that value and interpretation will be displayed.)

   (If your station happens to be Autauga County, Alabama, then you're all set for step 5. Otherwise, go on to step 2.)

   ```
   SET STA LOC CODE
   FIPS: [01001]
   [AL:Autauga      ]
   ESC=Abort ENT=Accept
   ```

2. Using the numbered keys on the Keypad, enter the 5-digit FIPS code for the state and county in which your organization is located (the complete list of FIPS codes appears in Appendix C). The cursor will advance automatically as you key in the digits. If you make an error in entry, you can use the LEFT (◂) and RIGHT (▸) keys to move the cursor to the incorrect digit and re-key the correct number.

3. When the code appears correctly, press ENT. The names of the corresponding state and county will appear on the interpretation line below (in the form: [ST:County]). Make sure the entered FIPS code is correct by checking that interpretation.

   (If for some reason you press ENT while an incomplete or non-FIPS number is on display, the field will revert to "xxxxx," the cursor will relocate to the leftmost position, and you must re-enter the FIPS number from step 2 above.)

   The screen displays the prompt "Y=Select, N=Ignore."

4. If the number is incorrect, press the "N" key (="6" key) and return to step 2 above. Otherwise, proceed.

5. Press the "Y" key (="9" key) to accept the information and exit to the **SET STATION INFO** menu (for next procedure).

NOTE: You can exit this menu at any time by pressing ESC, but the LOC code for your organization will remain unspecified, and your menu for encoding locations will not come up in the proper state (unless you've previously set a FIPS code, in which case it will remain at the former value).

Return: ENT *or* ESC ⇒ **SET STATION INFO** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting Your Station ID (LLLLLLLL-)

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 4 ⇒ **SET STATION INFO**

1. Select option 3. The **SET STA ID** screen is displayed, with cursor at leftmost position in an 8-character bracketed field consisting of a "0" at the leftmost position with the remainder of the field filled with blanks. (If you have previously set a value for Station Location, then that value will be displayed.)

```
SET STA ID
ID: [0          ]

ESC=Abort ENT=Accept
```

2. Key in your Station ID (e.g., "WHAT/FM") or other text identifying your organization, if not a broadcast station.

   Text is entered by cycling on the alphanumeric keys of the Keypad. With each pressing of a single key, it displays first the numeric value indicated on the key, then the alphabetic values so labeled -- one at a time, in order. For example, if you press the "2" key four times, it will display the following characters at the same cursor position, in succession: 2 ⇒ A ⇒ B ⇒ C. If you continue pressing the key, the cycle will repeat.

   At each cursor position, cycle to the character you want in spelling out your Station ID, and then use the RIGHT (▸) key to move the cursor and then fill in the next character. Use both LEFT (◂) and RIGHT (▸) keys to move the cursor to make corrections, if necessary. You are limited to a maximum of eight characters, though you may leave the rightmost positions blank.

   Note particularly that "Q" and "Z," normally unavailable on a standard telephonic keypad, can be accessed through the "1" key, which cycles these characters: 1 ⇒ Q ⇒ Z ⇒ /. This last character, the "slash" (/) may be used as a separator between parts of the ID (as in "WHAT/FM "). The "0" key cycles between two characters: "0" and a blank space. If you need to blank any characters in the field, position the cursor appropriately and cycle the "0" key.

3. When your ID is correct and complete, press ENT to accept the value and exit to **SET STATION INFO**.

   (The system cannot check for errors in typing your own ID. If you have accepted an incorrect value, or need to change the ID, simply re-access the **SET STA ID** screen and re-key the ID.)

4. To go on to **SET DATE/TIME**, press ESC again and return to **SYSTEM SETUP**, then select option 3.

NOTE: You can exit this menu at any time by pressing ESC, but your Station ID will remain at 0 and the messages sent by your unit will be in violation of the protocol (unless you've previously set an ID, in which case it will remain at the former value).

Return: ENT *or* ESC ⇒ **SET STATION INFO** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the Date and Time

Setting the Current Time & Date

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 3 ⇒ **SET DATE/TIME**

```
SET DATE/TIME
1 Current Date/Time
2 Set Time Zone
3 Set DST Flag
```

1. Select option 1. **TIME/DATE** screen is displayed, with cursor indicating the "month" (mm) field. The date and time appearing on-screen have been factory-set to the current date and current Eastern Standard Time. You should, at most, only need to reset the time if you're in a non-EST zone. (But all the values are easy enough to set and reset, if you'd like the practice.)

```
SET DATE/TIME      ◄►
01-01-97  15:18  ▲▼
mm-dd-yy  hh:mm
ESC=Abort ENT=Accept
```

2. Set the current month, by pressing the UP (▲) key or DOWN (▼) key to increment or decrement the displayed number. (Limits are 1-12.)

3. When month is correct, press the RIGHT (►) key, to bring the cursor into the "date" (dd) field.

4. Set the current date, by pressing the UP (▲) key or DOWN (▼) key to increment or decrement the displayed number. (Limits are 1-28, 29, 30, 31, depending on year and month. If you set a given month on its last day, and later change the month setting to one with a fewer number of days, the system will reset the date to reflect the last day of the newly set month.)

5. When date is correct, press the RIGHT (►) key, to bring the cursor into the "year" (yy) field.

6. Set the current year, by pressing the UP (▲) key or DOWN (▼) key to increment or decrement the displayed year. (Limits are 00-99.)

7. When year is correct, press the RIGHT (►) key, to bring the cursor into the "hour" (hh) field.

8. Set the current hour, by pressing the UP (▲) key or DOWN (▼) key to increment or decrement the displayed hour. Use Universal Coordinated Time, with PM hours > 12 -- e.g., 22 = 10 PM. (Limits are 00 to 23.)

9. When hour is correct, press the RIGHT (►) key, to bring the cursor into the "minute" (mm) field.

10. Set the current minute, by pressing the UP (▲) or DOWN (▼) key to increment or decrement the displayed minute. (Limits are 00 to 59.)

11. When minute is correct, save the settings and exit back to **SET DATE/TIME** by pressing ENT.

NOTE: You may correct or adjust any of the values at any time by using the LEFT (◀) and RIGHT (▶) keys to position the cursor at the desired element. UP (▲) and DOWN (▼) keys will increment or decrement. You may exit this menu at any time by pressing ESC, but none of the values keyed up till that point will be saved.

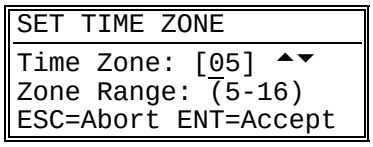
Return: ENT *or* ESC ⇒ **SET DATE/TIME** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the Time Zone

The **E▫A▫S** system operates on GMT (Greenwich Mean Time). For the system to display and time-stamp the correct local time, and interpret time-stamps from other zones correctly, you must provide the offset between your own time zone and the Greenwich meridian. You need to do this before setting the DST switch (next procedure); the system treats the DST setting as a correction to the time zone setting.

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 3 ⇒ **SET DATE/TIME**

1. Select option 2. **SET TIME ZONE** screen is displayed, with cursor indicating "05" in the Time Zone Offset field (5 hours is the current offset for the Eastern Standard Time zone.



2. Use the UP (▲) and DOWN (▼) keys to increment or decrement the Time Zone Offset until it correctly displays the difference, in hours, between GMT and your own local time.

3. Press ENT to save the setting and exit to the **SET DATE/TIME** menu.

Return: ENT *or* ESC ⇒ **SET DATE/TIME** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting for Standard/Daylight Savings Time

This setting informs the system whether the local time/date you supplied above in "Setting the Current Time & Date" represents Daylight Savings Time or not.

Access: **READY** / 4 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 3

1. Select option 3. **SET DST FLAG** screen is displayed, indicating Current Status of the Daylight Savings Time flag as "ON" or "OFF."

```
SET DST FLAG
DST: [OFF]▸

ESC=Abort ENT=Accept
```

   If the time/date you supplied in "Setting the Current Time & Date" represents Daylight Savings Time in your own zone, then the flag should be "ON;" if it represents Standard time, the flag should be "OFF."

2. If the setting needs to be switched, press the RIGHT (▸) key. It will switch "ON" to "OFF" and vice versa. You will be automatically returned to the **SET DATE/TIME** menu.

3. Press ENT to save the currently displayed setting (original or corrected) and exit to the **SET DATE/TIME** menu. To go on to reset passwords, press ESC to return to **SYSTEM SETUP**, then select option 5.

NOTE: ESC will cause the value to revert to that first displayed when you entered the screen.

Return: ESC ⇒ **SET DATE/TIME** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the Passwords

Setting the User Password

The System and User passwords are each 3-digit codes, to be entered each time you encode an **E▫A▫S** message or access **SYSTEM SETUP**, respecively. The default password, installed with the system, is "111" in both cases; in the following setup you will implement passwords of your own choosing. If for some reason you need to encode a message (or re-access the **SYSTEM SETUP** menu) before you have set your own password, "111" will allow access to both the encoding procedure and the **SYSTEM SETUP** menu.

Should you forget and/or lose the record of your passwords, call Burk Technical Support at (508) 486-0086 for assistance.

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 5 ⇒ **SET PASSWORDS**

1. Select option 2. **SET USER PASSWORD** screen is displayed, with cursor indicating the 3-character field "***," in square brackets.

```
SET USER PASSWORD
Enter Password:
        [***]
ESC=Abort ENT=Accept
```

2. Using the numbered keys on the Keypad, enter a 3-digit password that you can easily remember and protect. The cursor will advance automatically as you key in the digits. If you make an error in entry, you can use LEFT (◂) and RIGHT (▸) keys to move the cursor to the incorrect digit and re-key the correct number.

3. When the password code is complete and correct, press ENT to accept the password. The prompts, "Y=Accept," and, "N=Reject," appear.

4. To accept the password, press "Y" (="9"). You will exit to **SET PASSWORDS** with the previously displayed code as your new password. To reject the password, press "N" (="6"). The code will remain displayed in the field, but you can correct it by returning to step 1.

NOTE: You may exit this screen at any time by pressing ESC, but the system password will remain at its previous setting (system default = 111), regardless of what you have keyed in.

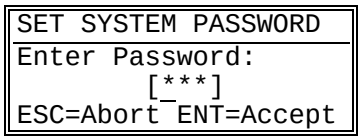
Return: ENT *or* ESC ⇒ **SET PASSWORDS** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

If, at a later date, you need to change the password you've set, use this procedure again.

Setting the System Password

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 5 ⇒ **SET PASSWORDS**

1. Select option 1. **SET SYSTEM PASSWORD** screen is displayed, with cursor indicating the 3-character field "***," in square brackets.



2. Using the numbered keys on the Keypad, enter a 3-digit password that you can easily remember and protect. The cursor will advance automatically as you key in the digits. If you make an error in entry, you can use LEFT (◂) and RIGHT (▸) keys to move the cursor to the incorrect digit and re-key the correct number.

3. When the password code is complete and correct, press ENT to accept the password. The prompts, "Y=Accept," and, "N=Reject," appear.

4. To accept the password, press "Y" (="9"). You will exit to **SET PASSWORDS** with the previously displayed code as your new password. To reject the password, press "N" (="6"). The code will remain displayed in the field, but you can correct it by returning to step 1.

NOTE: You may exit this screen at any time by pressing ESC, but the system password will remain at its previous setting (system default = 111), regardless of what you have keyed in.

Return: ENT *or* ESC ⇒ **SET PASSWORDS** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

If, at a later date, you need to change the password you've set, use this procedure again.

Audio Parameters and Indicators -- Testing Relays, Tones, and Setting Audio Levels

Selecting option 2 from the **SYSTEM SETUP** menu brings up the **TEST/CALIBRATE** menu. The procedures performed as monitor/test functions testing the On-Air and Alert relays, setting the main audio output, and calibrating the AFSK and EBS tones.

```
TEST/CALIBRATE    ▲▼
1 Test On-Air Relay
2 Test Alert Relay
3 Main Audio Output
4 Calibrate
```

Testing the On-Air Relay

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE**

1. Select option 1. **TEST ON-AIR RELAY** screen is displayed, indicating the current state of the relay ("ON" or "OFF") in a square-bracketed field.

```
TEST ON-AIR RELAY
On-Air Relay: [OFF]▸

ESC=Rtn ENT=Stay Set
```

2. Press the RIGHT (▸) key and the On-Air Relay is triggered, the unit goes on the air, and the "On-Air" LED is activated (as well as the auxiliary On-Air indicator, if installed). The relay is exepmt from the 5-minute inactivity timeout and the test will continue until actively terminated.

3. To facilitate audio adjustments, the On-Air Relay has been programmed to remain active until the menu is exited, so that you can perform on-air calibrations via the other audio parameter menus.

   Press ENT to exit the menu with the relay remaining active. Re-access the menu in the normal way when you wish to turn the relay off.

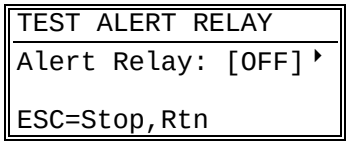
4. To terminate the Test, press either the RIGHT (▸) key or ESC. ESC also returns you to the **TEST/CALIBRATE** menu. The relay is de-activated, program is restored, and indicators return to their off-air status.

Return: ESC ⇒ **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Testing the Alert Relay

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE**

1. Select option 3. **TEST ALERT RELAY** screen is displayed, indicating the value "OFF" in a square-bracketed field.



2. Press the RIGHT (▸) key. The Alert Relay is triggered, activating the "Alert" LED (as well as the auxiliary Alert indicator, if installed). The relay is exempt from the 5-minute inactivity timeout and the test will continue until you actively terminate it.

3. To terminate the Test, press either RIGHT (▸) or ESC. The relay is de-activated and indicators switch off. ESC also returns you to the **TEST/CALIBRATE** menu.

Return: ESC ⇒ **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Calibrating the AFSK and EBS Signals and Setting Main Audio Output

The AFSK and EBS tones should be calibrated before the setting the main audio output (in "Setting the On-Air Audio," below). The **E▫A▫S** unit generates tones and provides amplitude control (relative to the main modulation) through its front panel; the operator should make adjustments in conformance with the station audio modulation monitor, not with the built-in or external monitor of the unit itself -- output to these latter devices is independent of the main On-Air and individual tone outputs.

Certain features peculiar to the realm of **E▫A▫S** audio require particular attention in adjusting audio parameters.

First of all, it's well to keep in mind that the amplitudes of the AFSK and EBS tones as broadcast are by necessity linked in relative fashion to the level of main audio output. In the **E▫A▫S,** though all three parameters feature an overall range of 24dB, the relative amplitude ranges of the tones vary with respect to main audio output level according to the relationship expressed in the following table:

MAIN AUDIO OUTPUT LEVEL (dB) Range: -12 dB to +12 dB	AFSK & EBS TONES RELATIVE AMPLITUDE RANGES (dB)
+12 dB	-24 dB to 00 dB
+11 dB	-23 dB to +01 dB
+10 dB	-22 dB to +02 dB
+09 dB	-21 dB to +03 dB
+08 dB	-20 dB to +04 dB
+07 dB	-19 dB to +05 dB
+06 dB	-18 dB to +06 dB
+05 dB	-17 dB to +07 dB
+04 dB	-16 dB to +08 dB
+03 dB	-15 dB to +09 dB
+02 dB	-14 dB to +10 dB
+01 dB	-13 dB to +11 dB
00 dB	-12 dB to +12 dB
-01 dB	-11 dB to +13 dB
-02 dB	-10 dB to +14 dB
-03 dB	-09 dB to +15 dB
-04 dB	-08 dB to +16 dB
-05 dB	-07 dB to +17 dB
-06 dB	-06 dB to +18 dB
-07 dB	-05 dB to +19 dB
-08 dB	-04 dB to +20 dB
-09 dB	-03 dB to +21 dB
-10 dB	-02 dB to +22 dB
-11 dB	-01 dB to +23 dB
-12 dB	00 dB to +24 dB

Furthermore, special considerations apply to the mix of digital and analog audio elements characteristic of **E▫A▫S** transmission, reception, re-transmission, and processing -- particularly with regard to the

difference in peak energies between the generated tones (AFSK and EBS) and the digitally recorded speech featured in the accompanying Voice Messages.

This consideration is complicated by the fact that there are minimum mandatory requirements to AFSK and EBS tone levels, and those tones -- because of their lower peak-to-average ratio -- will sound louder than speech audio. However, although tones will also appear louder on a standard VU meter, all levels are well within the range of normal audio processing.

E▫A▫S employs on-screen metering in setting audio input levels for the six program audio channels monitored, and also employs this mechanism for setting the input levels, over channel 6, of the digitally recorded speech that figures in **E▫A▫S** voice messages. True peak metering is used on all on-screen gauges. to insure that signal will not be clipped in the digital domain. The zero point of these gauges falls at -6dB.

Despite the fact that processing will tend to minimize disparities, care must nonetheless be taken in adjusting relative amplitudes of tones and speech audio. So, depending upon the parameters of your own processing, you may wish to reduce the tone level relative to audio playback. A good inital setting is -6dB on the AFSK and 2-Tone signals; you may also wish to compensate by bringing main audio output up once a workable balance is achieved. Main audio, as noted above, is adjustable from -12 to +12dB.

Calibrating the AFSK Modulation

Selecting option 4 from the **TEST/CALIBRATE** menu brings up the **CALIBRATE** menu:

```
CALIBRATE                ▲▼
1 AFSK Signal
2 2-Tone Signal
3 Separate Tone Test
```

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE** / 4 ⇒ **CALIBRATE**

1. Select option 1. **AFSK SIGNAL** screen appears, with AFSK tones audible over auxiliary monitor(s) and display indicating a number in the amplitude range -24dB ⇒ +24dB (relative to main audio -- see table on p. 37).

```
AFSK SIGNAL              ▲▼
Adjust Tone: [+00]dB
(-12dB to +12dB)
ESC=Abort ENT=Select
```

2. Use the UP (▲) and DOWN (▼) keys to increment or decrement the displayed audio level of the AFSK tones, in accordance with the station's main modulation monitor and the recommendations on p. 37. (The setting takes effect in real time, but you must press ENT to retain the setting upon exit from the screen.)

3. When the desired level, is set, within the mandated limits, press ENT to accept the setting and return to the **CALIBRATE** menu.

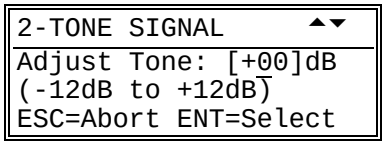
NOTE: You may exit the menu at any time by pressing ESC, but settings will revert to the values in effect when you first accessed the menu, regardless of any changes you might have keyed.

Return: ESC ⇒ **CALIBRATE** / ESC ⇒ **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Calibrating the EBS 2-Tone Signal

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE** / 4 ⇒ **CALIBRATE**

1. Select option 2. **2-TONE SIGNAL** screen appears, with combined EBS tones audible over auxiliary monitor(s) and display indicating a number in the amplitude range -24dB ⇒ +24dB (relative to main audio -- see table on p. 37).



2. Use the UP (▲) and DOWN (▼) keys to increment or decrement the displayed audio level of the combined EBS tones, in accordance with the station's main modulation monitor and the discussion on p. 37. (The setting takes effect in real time, but you must press ENT to preserve the setting upon exit from the screen.)

   When the desired level, is set, within the mandated limits, press ENT to accept the setting and return to the **CALIBRATE** menu.

NOTE: You may exit the menu at any time by pressing ESC, but settings will revert to the values in effect when you first accessed the menu, regardless of any changes you might have keyed.

Return: ESC ⇒ **CALIBRATE** / ESC ⇒ **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

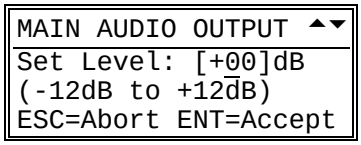
Setting the On-Air Audio

This procedure adjusts the On-Air amplitude (main audio output) of the messages generated by the **E▫A▫S** unit. The adjustment should be made after the AFSK and EBS tones have been calibrated, since their relative amplitudes are linked and thus controlled in tandem.

Remember that though the **E▫A▫S** provides amplitude control (relative to the main modulation) through its front panel, and sounds the tones (as a reference) over its auxiliary audio monitor(s), you must make the adjustments in conformance with the station audio modulation monitor, not with the **E▫A▫S** unit's own monitor(s) -- the unit's output is independent of the main On-Air output.

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE**

1. Select option 3. **MAIN AUDIO OUTPUT** screen is displayed, with the cursor indicating a number in the range -12 to +12, representing the amplitude range -12dB ⇒ +12dB. AFSK tones are turned on and audible over the auxiliary monitor.



2. Use the UP (▲) and DOWN (▼) keys to increment or decrement the displayed audio level of the main output represented by the overall **E▫A▫S** signal, in accordance with the station's main modulation monitor. (Adjustments take effect in real time, but you must press ENT to retain those settings upon exit from the screen.)

3. When the audio is set to the desired level, within the mandated limits, and in light of the discussion and recommendations made on p. 37, press ENT to accept the setting and return to the **TEST/CALIBRATE** menu.

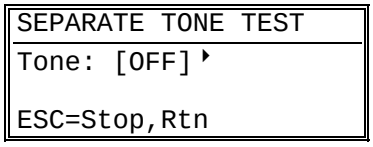
NOTE: You may exit the menu at any time by pressing ESC, but settings will revert to the values in effect when you first accessed the menu, regardless of any changes you might have keyed.

Return: ESC **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Testing the EBS Tones Individually

Access: **READY** / 4 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 2 ⇒ **TEST/CALIBRATE** / 4 ⇒ **CALIBRATE**

1. Select option 3. **SEPARATE TONE TEST** screen appears.



2. To test the 853 Hz tone, press the RIGHT (▸)key. The tone will sound over the speaker/auxiliary monitor, and continue to do so until another selection is made.

3. To test the 960 Hz tone, press the RIGHT (▸)key again. This tone will also sound until another option is chosen.

4. To turn the tones off, press the RIGHT (▸)key once more.

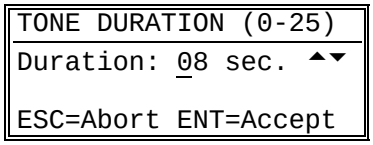
5. When the test is concluded, press ESC to return to the **CALIBRATE** menu.
   (Pressing ESC during the sounding of tones will also turn the tones off, as well as exit the menu.)
   Then press ESC twice to return to **SYSTEM SETUP** in order to Set **TONE DURATION**.

Return: ESC ⇒ **CALIBRATE** / ESC ⇒ **TEST/CALIBRATE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the Duration of the Attention Signal Tone

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 6

1. Select option 6. **TONE DURATION** screen is displayed, with cursor at leftmost position of 2-digit number indicating current setting, in seconds. The initial default is 8 seconds. (If you've previously reset the Tone Duration, then that reset value with be displayed.)



2. Use the UP (▲) key and DOWN (▼) key to increment or decrement the displayed number, until you reach he value you want. The statutory lower limit as of this writing is 4 seconds and the upper limit is 25.

   The tones can be turned OFF by decrementing them to 00.

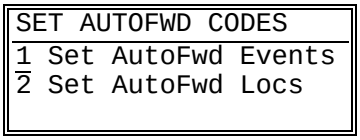
3. When the Tone Duration is set as desired, press ENT to accept the value and exit to **SYSTEM SETUP**.

NOTE: You can exit this menu at any time by pressing ESC, but the Tone Duration will remain at its previously set value (8 seconds, if you've never explicitly set a value).

Return: ENT *or* ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the Auto-Forward Codes

From the **SYSTEM SETUP** menu, choose option 1, which brings up the **SET AUTOFWD CODES** menu:



Setting the System to Auto-Forward on Selected Events

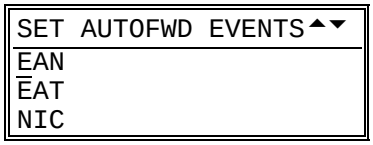
In this procedure, you select the list of Events that will, along with Location (see next setup task), qualify any received message for automatic forwarding (re-transmission). For example, if you select the Event "HUW" (for Hurricane Warning), then all incoming **E▫A▫S** messages mentioning that Event and a locality specified in your list of qualifying Locations (next task) will be flagged for automatic re-broadcast.

The procedure for deleting auto-forward-qualifying Events from your watchlist is discussed in the next procedure following.

Adding Event Codes to the Auto-Forward Watchlist

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 1 ⇒ **SET AUTOFWD CODES**

1. Select option 1. **SET AUTOFWD EVENTS** screen is displayed, with cursor at first item of EVENT list. (You may wish to refer to the hard copy of the entire Event Code list, in Appendix B.)



2. Using the UP (▲) and DOWN (▼) keys, move the cursor to indicate an Event Code that you wish to include on your Auto-Forward watchlist.

3. Press ENT, and the prompt "[Y=Select]" will appear next to the cursor-marked item.

4. If you're certain of including the Event in your watchlist, press the "Y" key (= "9" key). The prompt will disappear, and a "#" will be displayed next to the Event Code, marking it for inclusion on the watchlist.

   If you're not certain, then move the cursor to another item (or press any key except ESC, ENT, or "9") and the prompt will disappear.

5. If you want to make further selections (any number of Event codes are permitted on the watchlist), then go back to step 2 and repeat the marking process.

6. If you've marked a selection by mistake, or have changed your mind about including a selection, then go to step 2 of the next procedure ("Removing Event Codes from the Auto-Forward Watchlist").

7. When the list of marked codes is correct and complete, press ESC to accept the selections and exit to **SET AUTOFWD CODES**. The system will include each Event code marked with a "#" on your station watchlist for auto-forwarding.

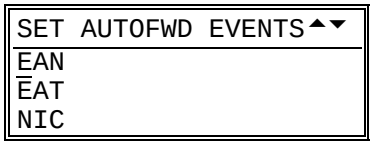
NOTE: You can exit this menu at any time by pressing ESC, but the system will accept whatever values have been marked for selection. To remove selections from the list at any time, see the next procedure ("Removing Event Codes from the Auto-Forward Watchlist").

Return: ESC ⇒ **SET AUTOFWD CODES** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Removing Event Codes from the Auto-Forward Watchlist

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 1 ⇒ **SET AUTOFWD CODES**

1. Select option 1. **SET AUTOFWD EVENTS** screen is displayed, with cursor at first item of EVENT list. (You may wish to refer to the hard copy of the entire Event Code list, in Appendix B.)



2. All the Event Codes which are included on the watchlist are marked with a "#." Using the UP (▲) and DOWN (▼) keys, move the cursor to indicate a #-marked Event Code that you wish to delete from your Auto-Forward watchlist.

3. Press ENT, and the prompt "[N=Remove]" will appear next to the cursor-marked item.

4. If you're certain of removing the Event from your watchlist, press the "N" key (= "6" key). The prompt will disappear, and so will the "#" displayed next to the Event Code.

   If you're not certain, then move the cursor to another item (or press any key except ESC, ENT, or "6") and the prompt will disappear.

5. If you want to make further deletions from the list, then go back to step 2 and repeat the de-selection process.

6. If you've deleted a selection by mistake, or have changed your mind about removing a selection, then go to step 2 of the preceding procedure ("Adding Event Codes to the Auto-Forward Watchlist").

7. When you've deleted the selections you wished to, and the list of marked codes is correct and complete, press ESC to accept the remaining selections and exit to **SET AUTOFWD CODES**. The system will include each Event code still marked with a "#" on your station watchlist for auto-forwarding.

NOTE: You can exit this menu at any time by pressing ESC, but the system will accept whatever values are currently marked for selection. To add selections to the list at any time, see the previous procedure ("Adding Event Codes to the Auto-Forward Watchlist").

Note also that deleted items are not actually removed from the displayed list; only the "#" flag is added or removed to signify inclusion in or removal from Auto-Forward watchlist. All the original Event Codes remain permanently in the menu.

Return: ESC ⇒ **SET AUTOFWD CODES** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting the System to Auto-Forward for Selected Locations

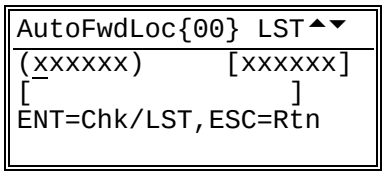
In this procedure, you select the list of Locations that will, along with Events (see previous setup task), qualify any received message for automatic forwarding (re-transmission). For example, if you select a FIPS code indicating the neighboring county, then all incoming **E▫A▫S** messages mentioning that FIPS code and an emergency in your list of qualifying Events (previous task) will be flagged for automatic re-broadcast.

The three procedures below discuss the methods for adding and for removing Location Codes to and from your Auto-Forward watchlist, and also for viewing that list on-screen. (For looking up the correct designations to enter, you probably want to have the master list of FIPS codes at hand -- see Appendix C.)

Adding Location Codes to the Auto-Forward Watchlist

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 1 ⇒ **SET AUTOFWD CODES**

1. Select option 2. **AUTOFWD LOC LST** screen is displayed, with cursor at the beginning of the leftmost of two 6-character bracketed fields. Upon access at initial setup, both of these fields are set at "xxxxxx" (after items have been added to the Location list, the rightmost field contains the code of the head item on the list each time you access the screen from **SET AUTOFWD CODES** -- or if you're in the midst of adding or removing items, the leftmost field contains the code of the most recently selected item). A 2-character field in angle brackets on the Headline provides a Location counter, indicating how many are items are currently in the list -- upon initial access, the setting is "00."



2. Key in the FIPS code for a county and subdivision you wish to include on the watchlist. Remember, the subdivision is the first digit -- "0" selects the entire county, and the numbers 1-9 select a portion, as in the following chart:

1 [N.West]	**2** [N.Cen.]	**3** [N.East]
4 [W.Cen.]	**5** [Cen.]	**6** [E.Cen.]
7 [S.West]	**8** [S.Cen.]	**9** [S.East]

0 = [All]

The cursor advances to the next character position with each number you key in. In case of errors, use the LEFT (◂) and/or RIGHT (▸) keys to move the cursor to the position of the number that requires correction, and re-key the correct number. (The cursor needn't end up at the rightmost position, as long as the code itself is correct.)

3. When the FIPS code is correct and complete, press ENT. The text interpretation of the code (i.e., the state abbreviation and name of the county) appears on the line immediately below, the cursor disappears, and the bottom line displays the prompt "Y=Add, N=Ignore."

   If you've keyed in a non-existent code (one not on the FIPS list), then the field will revert to "xxxxxx;" you should check the code and re-key it with step 2, above.

   If you're not certain, or have changed your mind about including the displayed location on the watchlist, continue with the next step -- otherwise, go on to step 5.

4. To de-select the Location, press the "N" key (="6" key). The cursor will reappear in the leftmost field, the prompt will vanish, and you can start again with step 2, above. (The keyed code and text interpretation still remain on display, but they will be removed when you key and enter a code, or press ESC.)

5. To confirm the selection of the Location, press the "Y" key (="9" key). The prompt disappears and the cursor reappears in the leftmost field.

   If this is the first Location you've added, its code will now appear in the rightmost 6-character field, which will always display the code of the item at the head of the list. Should you ever delete that item, then the field will display the next-oldest item, which would then be the new head of the list.

The Location Counter is incremented by one with each code added. If you add a different subdivision of an already-included county, the Location Counter will increase and the separate code will be stored, even though the displayed text interpretation (i.e. state, and county as a whole) will be identical.

If you happen to add an exact duplicate to an item already present on the list -- same subdivision, state, and county -- the Counter will stay the same (and only the original reference will remain).

Should you ever delete any item, the Counter will be decremented by one.

The limit of the list is 31 items -- if you reach it, the prompt will indicate "Limit," instead of "Y=Add," and you can only decline any new selection you try to key from that point on, unless you delete at least one existing item.

6. To add further Locations to the list, return to step 2.

   Should you need to view those items already contained on the list, go on to step 2 of the next procedure, "Viewing the Location Codes on the Auto-Forward Watchlist."

   To delete items from the watchlist, go on to step 2 of the next procedure but one, "Removing Location Codes from the Auto-Forward Watchlist."

   Otherwise, press ESC to exit to the **SET AUTOFWD CODES** menu.

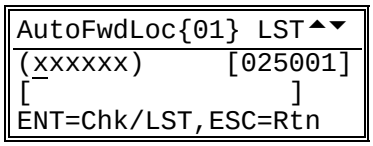
NOTE: You can exit this procedure at any time by pressing ESC from the initial screen; LEFT (◂) then ESC from the SET/LST screen; or ESC twice from the List screen.

Return: ESC ⇒ **SET AUTOFWD CODES** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Viewing the Location Codes on the Auto-Forward Watchlist

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 1 ⇒ **SET AUTOFWD CODES**

1. Select option 1. **AUTOFWDLOC LST** screen is displayed, with cursor at the beginning of the leftmost of two 6-character bracketed fields. When there are items currently on the list, the leftmost field is set at "xxxxxx" (or the most recently selected code, if you're in the midst of adding or removing items), while the rightmost field initially contains the Location Code of the first item on the LOCATION list. A 2-character field in parentheses on the Headline provides a Location counter, indicating how many are items are currently in the list.



2. Press ENT, and the bottom line of the screen displays the prompt "◀ = SET, ▶ = LST."

3. Press the RIGHT (▶) key, and the line immediately below the code fields displays the text interpretation of the rightmost field (state abbreviation and county name), which is the head of the list.

4. Press the UP (▲) key, and the screen displays the code and interpretation of the second item on the list. You can continue to use the UP (▲) and DOWN (▼) keys to move through the entire list to examine all the items present. When a cursor key no longer produces a change in the displayed code, it indicates that you've reached the limit of the list in that direction. The Location Counter, in angle brackets on the Headline, indicates the total number of items on the watchlist.

   (If you are viewing the list in order to determine the correct code for an item to be removed, then step through the list until that item is on display, and do not move through the list any further.)

5. When you have finished viewing the list, press ESC. The initial screen is redisplayed, but with the code and interpretation of the last item viewed (whatever its actual place in the list).

   (You can use this feature when removing items from the list; stop viewing at an item you wish to delete, ESC back to the first screen, and the code to key in for deletion will be conveniently in view. If you're presently in the midst of deleting items, then go back to step 2 of the next procedure.)

6. If, after viewing, you wish to add more Locations to the watchlist, go to step 2 of the preceding procedure, "Adding Location Codes to the Auto-Forward Watchlist."

   If you wish to remove codes from the list, go on to step 2 of the following procedure, "Removing Location Codes from the Auto-Forward Watchlist."

   Otherwise, press ESC to exit to the **SET AUTOFWD CODES** menu.

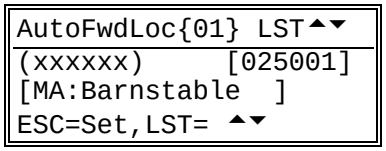
NOTE: You can exit this procedure at any time by pressing ESC from the initial screen; LEFT (◂) then ESC from the SET/LST screen; or ESC twice from the List screen.

Return: ESC ⇒ **SET AUTOFWD CODES** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Removing Location Codes from the Auto-Forward Watchlist

Access: **READY** / 4 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 1 ⇒ **SET AUTOFWD CODES**

1. Select option 1. **AUTOFWDLOC LST** screen is displayed, with cursor at the beginning of the leftmost of two 6-character bracketed fields. When there are items currently on the list, the leftmost field is set at "xxxxxx" (or the most recently selected code, if you're in the midst of adding or removing items), while the rightmost field contains the Location Code of the first item on the LOCATION list. A 2-character field in angle brackets on the Headline provides a Location counter, indicating how many are items are currently in the list.



2. If you're certain of the code for the Location you wish to delete, then key it in. The cursor in the leftmost field will advance, just as it does when you key in a code to add an item. If you make an error, use the LEFT (◀) and RIGHT (▶) keys to move the cursor to the character which needs to be corrected, and re-key that digit.

3. If you're not certain, then go to step 3 of the previous procedure, "Viewing the Auto-Forward Watchlist." When you have the desired item displayed, return to step 2, this procedure.

   (Remember, the code of the item at the head of the list is always on display when you first access the screen from the **SET AUTOFWD CODES** menu.)

4. When the code for the item is correctly keyed, press ENT. The cursor will disappear and the prompt "Y=Keep, N=Rem" will appear on the bottom line, while the line immediately above displays the text interpretation of the code (state abbreviation and county name).

   If you're not certain, or have changed your mind about deleting this item, continue with the next step; otherwise, go on to step 6.

5. To cancel the deletion, press the "Y" key (="9" key). The cursor will reappear in the leftmost field, the prompt will vanish, and you can start again with step 2 above. (The keyed code and text interpretation will still remain on display, but will disappear when you key and enter a code, or press ESC.)

6. To delete the item, press the "N" key (="6" key). The screen does not change, but the item is now removed from the list.

   (You do have a chance to recover it, however, if a mistake has been made. You can re-add it to the list by pressing ENT, then responding to the "Y=Add, N=Ignore" prompt with "Y.")

7. If you wish to delete further items from the list, return to step 2, above.

   Should you want to view the list, now that deletions have been made, go to step 2 of the preceding procedure, "Viewing the Location Codes on the Auto-Forward Watchlist."

   Or if you now wish to add items to the list, return to the second procedure preceding, "Adding Location Codes to the Auto-Forward watchlist," and start at step 2.

   Otherwise, press ESC to exit to the **SET AUTOFWD LOCS** menu.

NOTE: You can exit this procedure at any time by pressing ESC from the initial screen; LEFT (◂) then ESC from the SET/LST screen; or ESC twice from the List screen.

Return: ESC ⇒ **SET AUTOFWD CODES** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Setting Up the RWT Voice Mode

This menu item enables you to establish a voice mode for Required Weekly Tests -- No Voice, Live Voice, or Recorded Voice. Whichever you choose, RWTs will automatically be sent in that voice mode until you explicitly alter it. If you opt for the Recorded Voice, this menu also provides the means to record a 30-second Administrative Message for automatic inclusion in a Required Weekly Test. Typically, it would be based on the standard script for this FCC requirement (though the voice portion is itself optional). If you plan to record an Administrative Message, there should be a line-level microphone input to audio channel 6 on the **E▫A▫S** back panel (the recording channel) and the announcer should be prepared.

Access: **READY** / 7 ⇒ **SYSTEM SETUP PASSWD** / password ⇒ **SYSTEM SETUP** / 7 ⇒ **SET UP RWT VOICE**

1. Select option 7. **SET UP RWT VOICE** menu is displayed.

```
SET UP RWT VOICE
1*Use No RWT Voice
2 Use Live RWT Voice
3 Use Recorded Voice
4 Record RWT VOICE
```

   The default mode is No Voice as indicated by the asterisk (*) marking item 1. If that is your choice you can simply press ESC and exit the menu and the RWT will be sent without a voice message.

2. To employ a live announcement with RWTs, select option 2.

   You will exit the menu with that mode selected (and it will be asterisk-marked the next time you access the menu).

3. If you wish to use a recorded voice, select option 3. If you have already recorded an Administrative message at some point, it will be inserted in outgoing RWTs, and you will exit the menu with option 3 marked and in effect. If you choose item 3 without having recorded a message, you will automatically go to the Recording Procedure (as though you had chosen option 4). If that is the case, go on to the next step.

   (At the end of 30 seconds, recording will cease automatically, and you will return to the **SET AUTOFWD CODES** menu whether or not message is complete. A timed-out message will be stored and automatically used, so if timeout precedes completion of the announcement, return to step 2 of this procedure and re-record with the proper timing.)

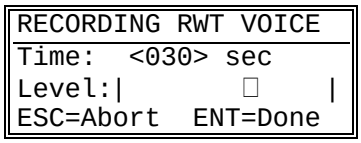
4. If you have chosen to record an Administrative message, or have selected option 3 without first having recorded a message, then the **RECORD VOICE** confirmation screen appears.

```
RECORD RWT VOICE


ESC=No       ENT=Yes
```

If you don't wish to proceed, press ESC and you will be returned to the **SET UP RWT VOICE** menu to choose a different option or exit.

5. To proceed with the recording, press ENT.

   The "please wait..." prompt appears, and after a few seconds, the **RECORDING RWT VOICE** screen appears.



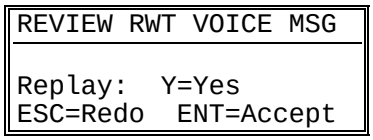
   The thirty-second timer begins counting down, and is your signal to cue the announcer.

6. Adjust the audio level, if necessary. The optimum recording level is at the zero point (blank rectangle) of the on-screen meter.

7. When recording is done, press ENT to accept the Voice Message.

   (At the end of 30 seconds, recording will cease automatically, whether or not message is complete. If a timeout has preceeded completeion, you may need to re-record.)

   The **REVIEW RWT VOICE MSG** screen is displayed with the "Replay;" prompt



8. If you wish to replay the message to check the recording, press "Y" (="9"). Otherwise go on to step 9.

   If you do so, then the message will play back while "Replay in Progress" is displayed on-screen.

   You may abort the replay process by pressing ESC and returning to the **REVIEW RWT VOICE MSG** screen.

9. If you wish to re-do the message, press ESC and the process will begin again at the the **REVIEW RWT VOICE MSG** screen, above.

10. Otherwise, press ENT to accept the recording and return to **SYSTEM SETUP**.

NOTE: The recording process may be aborted at any time by pressing ESC. This is not to be confused with accepting the recording at a time of less than 30 seconds, as in step 5 above. Aborting with ESC from the **RECORD RWT VOICE** screen returns you to the **SET UP RWT VOICE** menu with no recording begun. If you abort with ESC from the **RECORDING VOICE MSG** screen (i.e., in mid-

recording) the partial Message will be discarded. If you wish to resume recording from that point, you must return to step 4, above.

Return (from **RECORDING RWT VOICE**): ESC ⇒ **RECORD RWT VOICE** / ESC ⇒ **SET UP RWT VOICE** / ESC ⇒ **SYSTEM SETUP** / ESC ⇒ **READY**

Mode Select -- Setting Up for Manual/Automatic Forwarding and Local/Remote Operation

There are two mode toggles for the system, both accessible through **READY** menu option 6. Both control global aspects of system operation, and both may be switched from their initial defaults, and back again, at any time.

The first toggle switches between Manual and Auto-Forwarding of **E▫A▫S** messages:

- When the system is set to Auto mode, all incoming messages which are Auto-Forward qualified are re-transmitted automatically. (As discussed above, and in Receiving Messages, below, an Auto-Forward qualified message is one that matches both an EVENT and a LOCATION specified in **SET AUTOFWD CODES** options 1 and 2.)

- When the system is set to Manual mode, Auto-Forward qualified messages are subject to Delayed Forwarding. This routine, meant to minimize program disruption, gives the operator 15 minutes from receipt of message to decide whether to delete the message entirely, re-transmit at discretion (i.e., manually, before the 15 minutes are up), or allow the message to be re-broadcast automatically at the end of the timeout period. Taking no action (neither deleting nor explicitly forwarding the message) results in automatic forwarding when the 15-minute interval expires.

NOTE: When an incoming message features an EEE- (Event) code of EAN or EAT (Emergency Action Notification/Termination), it is always forwarded automatically, regardless of whether system mode is Manual or Auto.

An RMT (Required Monthly Test) message is treated as Auto-Forward qualified: forwarded automatically if the system is in Auto mode, subject to Delayed Forwarding if the mode setting is Manual.

A message which is not Auto-Forward qualified (i.e., no Event or Location match) is treated identically in either mode: the message is simply printed and displayed as an advisory. If for some reason the operator does deem it necessary to re-transmit such a message, it can be sent directly from the **REVIEW LAST MSG** menu. The message remains available in the Current Message buffer for such a disposition, at least until overwritten by a more recent message, or until its effective time expires (see "Receiving and Forwarding Messages," p. 63).

One further note: when the system is in Auto mode, Live Voice cannot be used with Encoded Messages. You must set the mode to Manual before beginning the Encoding process if you intend to transmit with Live Voice.

The second toggle switches between Local and Remote operation of the system:

- When the system is in Local mode, all operator-mediated functions of the system are controlled from the front panel of the **E▫A▫S** unit. Any input from a Remote device (automation system or remote control panel) is disabled.

- When the system is in Remote mode, the **E▫A▫S** may be controlled from a Remote device. However, local control is not disabled, and the front panel of the unit is still operational.

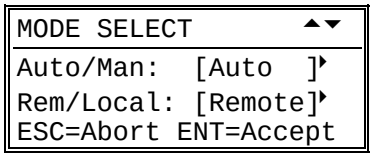
Following are the menu operations for setting the Auto/Manual and Remote/Local mode toggles. They are treated separately, though appearing on the same menu, since mode-setting will often be on an individual-toggle basis during actual system operation.

For these operations we will be returning to the **READY** menu. If your are still in **SYSTEM SETUP**, then press ESC. Notice that ESC takes you directly to **READY** without passing through the **SYSTEM SETUP PASSWD** screen (Again, there's no need for a password on the way out).

Switching Between Manual Forwarding and Auto-Forwarding of EAS Messages

Access: **READY**

1. Select option 6. **MODE SELECT** screen is displayed, with cursor at end of "Auto/Man:" line. Text within bracketed fields indicates current mode settings. (Initial default values are "Manual" and "Local.")



2. If you wish to change the mode from its currently displayed setting, simply press the RIGHT (▸) key, and the displayed setting switches to the alternative. ("Auto" becomes "Manual" and vice versa.) If you wish to leave the mode setting as it is, continue to step 3.

3. Make sure that the desired setting for Auto/Manual mode is on display.

   If you also wish to select the Remote/Local mode setting at this time, then go to step 2 of the next procedure.

   Otherwise, press ENT to set the system in the displayed Auto/Manual mode and exit to **SYSTEM SETUP** menu.

NOTE: The RIGHT (▸) key, with repeated pressings, simply toggles back and forth between the two alternative settings displayed in that line. You can switch back and forth at will; the setting only takes effect when you press ENT and exit the screen. You can also exit the screen by means of ESC; settings for both modes will remain at their previously set values, regardless of how the display was switched while you were in the menu.

Return: ENT *or* ESC ⇒ **READY**

Switching Between Local and Remote Operation

Access: **READY**

1. Select option 6. **MODE SELECT** screen is displayed, with cursor at end of "Auto/Manual" line. Text within bracketed fields indicates current mode settings. (Initial default values are "Manual" and "Local.")

2. Press the DOWN (▼) key to move the cursor down to the "Rem/Local" line.

3. If you wish to change the mode from its currently displayed setting, simply press the RIGHT (▶) key, and the displayed setting switches to the alternative. ("Remote" becomes "Local" and vice versa.) If you wish to leave the mode setting as it is, continue to step 4.

4. Make sure that the desired setting for Remote/Local mode is on display.

   If you also wish to select the Auto/Manual mode setting at this time, then press the UP (▲) key to relocate the cursor and go to step 2 of the preceding template.

   Otherwise, press ENT to set the system in the displayed Remote/Local mode and exit to **SYSTEM SETUP** menu.

NOTE: The RIGHT (▶) key, with repeated pressings, simply toggles back and forth between the two alternative settings displayed in that line. You can switch back and forth at will; the setting only takes effect when you press ENT and exit the screen. You can also exit the screen by means of ESC; settings for both modes will remain at their previously set values, regardless of how the display was switched while you were in the menu.

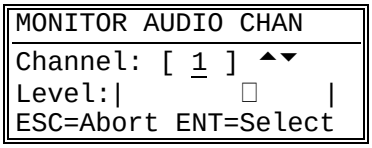
Return: ENT *or* ESC ⇒**READY**

Selecting the Channel for Audio Monitoring

This procedure effects the selection of the audio source to monitor in the studio. (Bear in mind, when we speak of monitoring, we mean directing audio to a studio monitor from one of the six input channels, the studio device being the built-in speaker on the **E▫A▫S** unit, and if so configured, an external monitor. The "monitoring" of the two FCC-assigned sources is another distinct process, carried out automatically by the system in its channel-scanning function.)

Access: **READY**

1. Select option 5. **MONITOR AUDIO CHAN** screen is displayed, with the cursor indicating the number of the current channel selection (from 1 to 6 -- default setting is "OFF," corresponding to 0) in a square-bracketed field.



2. Use the UP (▲) and DOWN (▼) keys to increment or decrement, respectively, the channel setting. Values can be from 1 to 6, corresponding to the six configurable audio inputs. Switching occurs in real time; but you still need to press ENT for the setting to be in effect when you leave the menu.

3. Incoming audio will activate the on-screen meter. Adjust the audio source to the zero point (blank rectangle) on the gauge, which corresponds to -6 dB.

   Perform the adjustment to each input connected, using the UP (▲) and DOWN (▼) keys to switch them.

4. Press ENT to accept the setting and exit to the **READY** menu.

NOTE: You may exit the menu at any time by pressing ESC, but the setting will revert to the values in effect when you first accessed the menu, regardless of any changes you might have keyed.

Return: ENT or ESC ⇒ **READY**

Going On-Line

Congratulations! You've now set the system up for regular operations -- and learned all of the system basics along the way: the uses of all the keys, menu selections, scrolling, both numerical and textual input, ENTering values, and ESCaping to previous screens.

All of the tasks you'll now be performing in operating the system day-to-day depend entirely, in various combinations, on those basic operations you've already learned. It's recommended that you continue reading the rest of the manual now, to familiarize yourself with the operator's job, the kinds of tasks you'll be performing, and where those tasks are treated in this manual.. You needn't memorize the procedures, because as the various situations arise you'll have this manual as a hands-on guide. For the first few times, as you perform an operator task, you can refer to the instructions as you go along. After a while, you'll only need it for occasional reference since, as you've already discovered, the system itself prompts most of the necessary responses.

You're in the **READY** menu and the system is open for business.

Receiving and Forwarding Messages

The system handles an incoming **E▫A▫S** message in one of several ways, depending upon certain of the parameters you have established in Mode Select and the various System Setup menus, and on the form and the content of the message itself. The operations you need (or don't need) to perform relative to that message -- forwarding, reviewing, etc. -- also differ according to the way the system handles it.

We'll discuss those differences momentarily, but just to establish the context, let's take a brief look at what happens when the system detects an incoming message. (Remember, provided it's powered up, the system is always capable of detecting messages.)

Detection And Validation Of An EAS Message

While on-line, the system constantly monitors one user-selected audio source, playing the output through the front-panel speaker, and through an external monitor, if so configured (unless the monitor is switched off -- see p. 61). Simultaneously, however, the system is also scanning all its audio channels (anywhere from 2 to 6 sources, depending upon the configuration you have chosen), plus its RBDS channel, for the signature of an Emergency Alert System message. That signature can take any one of four forms:

- AFSK modulation indicating **E▫A▫S** header code
- EBS 2-tone Attention Signal
- 1050 Hz National Weather Service (NWS) signal
- RBDS (Radio Broadcast Data System) header data

Only the first case will receive detailed discussion in this manual, as the EBS and NWS signals are simply handled, and there is as yet no regulatory mandate or specification for RBDS.

Detection and Handling of EBS, NWS, and RBDS Signals

When an EBS or NWS modulation is detected on a scanned channel, the system observes the former EBS protocol: It begins monitoring that channel and triggers the ALERT indicator (front-panel LED, and external annunciator, if connected). Then it demutes the auxiliary audio (to integral speaker and studio monitor), and activates a 2-minute timeout, starting 1 second after cessation of the attention signal. Incoming audio is monitored for that 2-minute period, while the system returns to scanning. Following timeout, the system shuts off the ALERT indicator, squelches the auxiliary audio and returns to the initial ready state, monitoring whichever assigned source has been selected in Setup. No messages are recorded or transmitted.

There is as yet no **E▫A▫S** protocol involving RBDS, other than the specification of its 1200-baud rate, and that its emergency message should be conformal with the **E▫A▫S** header (see "The **E▫A▫S** Message", p. 9) but without the Preamble. Though there is currently no RBDS implementation in this regard, the capability has been included in the **E▫A▫S** system in consideration of future developments. Should an RBDS component to the Emergency Alert System be specified, **E▫A▫S** has been designed to process its **E▫A▫S** messages just as it does in the case of standard AFSK-modulated messages, which we are now about to discuss.

Detection and Validation of Standard EAS Messages

When an AFSK-modulated **E▫A▫S** signature is detected, the system initiates the following actions:

- First, scanning is reduced to a minimal rate, and the system locks on to the channel in which the signature has been detected, relaying the audio output to the speaker and external monitor.

- Second , the system begins storing and analyzing the incoming signal to determine whether it is a valid **E▫A▫S** message, with a header of the proper form, correctly transmitted.
  If no valid header is found, then the system abandons both processing and monitoring, squelches the audio output, and resumes full scanning while monitoring the previously selected assigned source. Nothing of the signal is either stored or retransmitted, and the system reverts fully to the Ready state.
  If the header is found to be valid, the decoding begins instantly, even as the message is being received (with low-level scanning continuing, in case a higher-priority message should arrive during processing).

Before we discuss decoding, let's briefly consider the simultaneously occurring remainder of the reception process.

Following the reception of the valid header, the system looks for the EBS tones and sets a 2-minute timer when their reception is complete. The system checks whether another message is currently being encoded or transmitted, and if so, does not record the audio portion of the incoming message (which, if present, follows the EBS tones). Otherwise, it records the incoming audio, storing it in the Received Audio Buffer. During the recording process, the system watches for the EOM (End-Of-Message signal -- see "The **E▫A▫S** Message," p. 9) indicating the end of the voice segment and the entire message, and upon detection, ceases recording. If no EOM is detected before the timer expires, then the system stops recording upon expiration. In either event, the message is now fully received and control passes entirely to the Message Processing function, discussed immediately below.

(Note that if there is no further message following the valid header -- i.e., no EBS tones, voice message, or EOM -- the system accepts the header as constituting the entire message, and processes it normally, excepting storage and re-transmission of a voice message.)

Decoding and Processing an EAS Message

Decoding is the first stage in processing the message, and as noted, it gets underway as soon as the header is validated. As decoding proceeds, the system examines the contents of the header to determine whether the message is a duplicate of one already received. If the Event and Location Codes of the header fully match those of a message previously received and stored, and if the effective periods of both indicate that the new message is not an update, then the new message is considered a duplicate. In this event, no further action is taken; the message is dropped and the system returns to the Ready state.

If the message is not a duplicate, then the system examines the decode to determine whether the message should be forwarded automatically, selected for delayed forwarding, or simply printed and displayed as an advisory.

And while it has been establishing these re-transmission criteria, the system has also been generating a textual interpretation of the message, storing it for printing and display when the forwarding priorities have been determined (in the following sections, we'll discuss the timing and content of those printouts and displays). So at the conclusion of decoding, the system will be poised to act on one of the following possibilities:

- A National-priority message concerning an EAN or EAT Event (Emergency Action Notification/Termination). For the remainder of the discussion we'll refer to either case as an *EAN Message*.

- A message proceeding from a Required Monthly Test, henceforth referred to as an *RMT Message.*

- An *Auto-Forward Qualified Message*, that is, one which features:

  An Event code matching an entry on your own station's Event watchlist (selected in the **AUTOFWD EVENTS** menu);

  and

  At least one Location code matching one of the FIPS codes entered in your own station's Location watchlist (compiled in the **AUTOFWD LOC** menu).

- A message with none of the above qualifications, i.e., non-EAN, non-RMT, and not qualified for auto-forwarding -- either by lack of an Event match, or a Location match, or both. This type will be known henceforth as an *Advisory Message*.

  Note that a message proceeding from a Required Weekly Test (RWT) conducted by a station other than your own is treated as an Advisory Message when your station receives it; there is no auto-forwarding of an RWT.

These four situations comprise the entire range of possible message types the **E▫A▫S** operator needs to deal with. Now let's examine the way the system does its message processing, in general and then in each of these cases, and consider the operator tasks involved with each one.

Handling a Valid EAS Message

There are certain general message-handling functions that the system performs regardless of type. We'll briefly discuss the common features first, before dealing with the type-by-type specifics in which the processing differs.

Following the initial examination of a message for possible duplication (as discussed above), the system immediately examines the Event Code (EEE-) portion of the header for the presence of an EAN or EAT, which have the highest priority for re-transmission, then for an RMT, which is slightly higher in priority than other Auto-Forward-Qualified messages. With the immediate-forward flagging of these items accomplished, the system then writes the message simultaneously into the Current Message Buffer and Receive Log.

If the Event Code does not establish EAN or RMT priority, then the system continues the analysis by focusing next on identifying AFQs, attempting to match the Event Code (EEE-) and Location Code(s) (PSSCCC-) of the message header against those stored in the user-defined Auto-Forward Events watchlist and Auto-Forward Locations watchlist. If the Event Code in the message header corresponds to an Event on the watchlist and the header and watchlist have at least one Location in common, then the message is flagged for Auto-Forwarding.

Failing that identification, the system next determines whether or not the message represents an RWT, and in the absence of such a match, gives the message the status of an Advisory.

In each of these cases, the system issues an Alert as soon as the qualification of the message is determined. The Alert Relay is triggered, which activates both the Alert LED on the front panel and an auxiliary Alert indicator, if one is configured. The LCD screen displays an ALERT, which features the word "ALERT!" on the Headline along with the AFQ status of the message. The remainder of the display consists of the Event interpretation, the Date/Time stamp of the transmission, and the effective time period, or Duration (+TTTT) of the alert. Afterwards, the screen begins to scroll the text interpretation of the message, 3 lines at a time, advancing by one line every 3 seconds. If enabled, the printer will produce a hard copy of the text interpretation, plus the ASCII version of the header itself, and the date/time stamp of reception. (The print consumes more time than the screen crawl of the text interpretation).

While the display and print are ongoing, the system also plays the message audio over the speaker/auxiliary monitor, for which the channel-selection and demuting were performed immediately upon detection of the header tones (see "Detection and Validation of Standard **E▫A▫S** Messages," p. 64).

Message audio will always feature the AFSK tone of the header: three bursts of modulation, each approximately one second in duration, with about a second's pause between. The audio may or may not include the two-tone EBS Attention Signal, and there may or may not be a voice message (if there is, however, it will be two minutes or less in duration) In general, the EOM tones will also be heard -- three much shorter bursts of AFSK modulation than those of the header, but again, with approximately one second between them. As we discussed in the foregoing section, it is possible for a message to be received and regarded as valid without the presence of an EOM. (To cover such cases, the system activates a timeout, beyond which it will regard the message as ended even without EOM reception. This timeout is disabled for EAN Messages, however, which -- when transmitted in Live Voice Message mode -- may be open-ended; see "Sending an **E▫A▫S** Message," p. 91.)

Following reception of the EOM (or timeout, in the odd case) the system deactivates the Alert Relay, squelches the audio, and either resumes the Ready state or goes into an immediate or delayed forwarding mode, depending upon message type. Let's now discuss those differences among types and the different kinds of handling occasioned by them.

The table below summarizes message-handling according to message type and system mode; you may find it useful to refer to it during the discussion:

E▫A▫S Message-Handling

	EAN	***RMT***	***Auto-Forward Qualified***	***Advisory (Not Qualified)***
Auto Mode	Message auto-forwarded	Message auto-forwarded	Message auto-forwarded	Display/print only
Manual Mode	Message auto-forwarded	If message not manually forwarded or deleted within 15 minutes, then auto-forwarded	If message not manually forwarded or deleted within 15 minutes, then auto-forwarded	Display/print only

Handling an EAN Message

As noted, National-priority messages are distinguished by an EAN (Emergency Action Notification) or EAT (Emergency Action Termination) Event Code, and would typically be issued by the White House to proclaim a state of national emergency and then its cessation. Such a message takes priority over all other classes of message and system functions.

EAN: System Functions

The first decoded message component the system analyzes is the Event Code (EEE-), to determine whether it comprises the EAN or EAT identifier. If so, the system does no further analysis, but writes the header into the Receive Log and Current Message Buffer (overwriting whatever message is in the latter) and goes directly to the Message Forwarding State, while the following ALERT screen displays:

```
ALERT! (Auto-Fwd)
Emergency Action Noti
Time: 11-21-97 18:19
Dur: 02 hrs, 00 min_
```

Immediately, the system triggers the On-Air Relay, thus interrupting the program, and then relays the message to the transmitter for broadcast. It does so by sending the contents of the Current Message Buffer (and Received Audio Buffer, if there was a voice message) through the Main Audio Output. The Station ID in the received message is replaced with the ID of your own station in the re-transmitted message. In this single case, the system overrides Manual mode (if that is the current state) and *Auto-Forwards the message regardless of mode setting.*

As transmission begins, the system displays an AUTO-FORWARD screen, which tracks the re-sending of the message, in a progressive display.

If on-line, the printer simultaneously begins printing a hard copy of the text interpretation, plus the ASCII version of the header itself, and the date/time stamp of transmission.

Following transmission of the EOM, the system switches off the On-Air Relay, thus restoring program transmission, and returns to the Ready state.

EAN: Operator Tasks

In this instance, the relay of the message is entirely automatic and immediate. All you need to do with respect to the message itself is to integrate the printout into the station log in accordance with customary practice.

If the printer happened to be off-line during the reception and forwarding of the message, and no other messages were processed since, press the SEL switch to put the printer on-line and the saved EANwill print out in its entirety. Otherwise, consult "Reviewing the Message Logs," (p. 100) after enabling the printer (it will first print out the most recent message). Follow the instructions for reviewing both the Receive Log and the Transmit Log; the received EAN will be in the former, the forwarded version will reside in the latter. Hard copies will be produced in the course of review.

The only other operator tasks with regard to an EAN message concern the operations which the processing of the EAN may have interrupted. If you had been in the process of receiving, sending, encoding, reviewing or recording a message when the EAN arrived, then those operations would have been dropped by the system. If a Delayed Forward message (from a previously received AFQ) had been resident in the Current Message Buffer upon the arrival of the EAN, then that message would have been overwritten and its 15-minute countdown cancelled, along with its Auto-Forward status (see "Handling an Auto-Forward Qualified Message," p. 72). The various options for recovery from the interruption are set forth in the following table:

Recovery from Message Interrupts

Message-Interrupted Operation	Recovery
Receiving	If reception progressed sufficiently that the ALERT screen was displayed before interruption, then the message header can be found in the Receive Log. The audio portion (if any) will be unrecoverable. The header of the interrupted message can be reviewed, printed, and its hard copy entered in the station log by following the procedures in "Reviewing the Message Logs" (p. 100). If it is necessary to forward the message, it can be re-encoded (using the printout as a guide), with new audio recorded (if desired), and transmitted, by following the procedures in "Encoding and Sending Messages" (p. 81). If the reception process did not progress as far as issuing the ALERT (i.e., header not yet validated), then the received message is unrecoverable. It was not stored in the Receive Log, nor would you have been aware of its reception.

Sending / Forwarding	Whether or not an interrupted transmission needs to be resent depends upon the stage at which it was interrupted. • If the interruption occurred during the transmission of the EOMs, then the tones and voice were broadcast and any receiving EAS system downline will recognize the message as valid (as long as the header was sent correctly). Re-sending is not necessary. • If the attention signal or voice portion of the broadcast was interrupted, then you must judge how critical the interruption was and decide whether or not to re-send. Downline EAS receivers will still have the header, and thus the ability to reconstitute the message. • If the sending of the message header was interrupted, and the message was an essential one, then nothing was broadcast but a partial set of AFSK tones, and reception of a valid header by a downline receiver is unlikely; you should re-send. If the message requiring re-transmission is one that you had originated, then you need to re-encode it (re-recording the audio, if the original included any) and send again. As long as transmission had actually begun, there will be a copy of the header of the interrupted message in the Transmit Log, should you need to review it in order to re-encode (see "Reviewing the Message Logs," p. 100) If you need to re-send a message whose forwarding was interrupted, you must re-encode it from the printout available by reviewing the message in the Receive Log (see "Reviewing the Message Logs," p. 100). Use the procedures in "Encoding and Sending Messages" (p. 81) to do the encoding, re-recording audio (if necessary) and transmission. If it is an RWT or RMT that requires re-transmission, then simply restart the procedure (see "Conducting Required Tests," p. 77).
Encoding	A message interrupted during the encoding process must be re-encoded again from the beginning, including re-recording any audio portion. See "Encoding and Sending Messages" (p. 81).
Reviewing	An interrupted review of the Receive Log or Transmit Log can simply be initiated again. A review of the Current Message which has been interrupted necessitates going to the Receive or Transmit Log to re-review, as the contents of the Current Message Buffer will have been overwritten. See "Reviewing the Message Logs" (p. 100).

Recording	If the interruption occurred during recording of voice audio for a message you were in the process of encoding, then you need to re-encode the message from the beginning (including re-recording). If the incoming message interrupted the recording of voice audio for an RMT, or of an Administrative Message for an RWT, then simply restart the appropriate procedure and record again. (See "Recording an Administrative Message," p. **Error! Bookmark not defined.**, and "Conducting Required Tests," p. 77.)
Holding a Delayed Forward Message	If a message was being held in a Delayed Forward state (see "Handling an Auto-Forward Qualified Message," p. 72) when the incoming message arrived, then the 15-minute timeout was cancelled, auto-forwarding is cancelled, voice audio is unrecoverable, and manual forwarding cannot take place without reconstituting the message. If the Delayed Forward message was one you had intended to delete, then nothing need be done. The message is expunged from the Current Message Buffer and a copy of the header resides in the Receive Log. If you had intended to forward the message, however, then it must be re-encoded. (This is mandatory if the overwritten message happened to be an RMT.) The header information can be printed out by following the procedures in "Reviewing the Message Logs" (p. 100), and the printout can be used as the guide to re-encode and send (with a new Voice Message, if desired), using the procedures in "Encoding and Sending Messages" (p. 81).

Handling an RMT Message

A Required Monthly Test (RMT) message is used to assure the forwarding ability of the **E▫A▫S** network. RMTs are issued only by certain designated Originators (in general, Primary Entry Points, or PEPs) and are to be forwarded by all receivers. **E▫A▫S** is designed to handle both the initiation and forwarding of RMTs in as simple and straightforward a fashion as possible. Originating an RMT is discussed in the section "Conducting a Required Monthly Test (RMT)," p. 79. The section immediately following concerns only the reception and forwarding of RMTs. The eventual disposition of an RMT is identical to that of an ordinary Auto-Forward Qualified message, though it is given a slightly greater initial processing priority.

RMT: System Functions

As noted above, the system first analyzes the Event Code (EEE-) of the incoming message for the presence of an EAN or EAT identifier. If neither is present then it immediately looks for an RMT Event Code. If found, the system abandons further analysis and writes the header into the Received Message and Current Message Buffers (overwriting whatever message is in the latter) and flags the message for Auto-Forwarding.

From this point on in the processing, the RMT is treated exactly like an Auto-Forward Qualified message, sent immediately if the system is in Auto mode, subject to Delayed Forwarding if the mode is Manual. The distinction of an RMT is that which has already been noted, viz., it overwrites the Current Message Buffer and thus goes to the head of the line for either Auto- or Delayed Forwarding. For the remainder of the discussion of the system disposition of an RMT, see "Handling an Auto-Forward-Qualified Message" (p. 72).

RMT: Operator Tasks

For reception of an RMT, the operator tasks are the same as in the case of ordinary Auto-Forward-Qualified message, with one exception. Because the system treats an RMT like an EAN message insofar as its processing interrupts all other functions (except for the higher-priority EAN itself), you may need to reconstitute some interrupted operations. Consult the "Recovery from Message Interrupts" table (p. 68); the same categories and considerations are applicable to the case of an RMT.

Beyond management of interrupted operations, the remaining operator tasks with respect to RMTs are discussed under "Handling an Auto-Forward Qualified Message," immediately following.

Handling an Auto-Forward Qualified Message

The method by which the system forwards messages is designed to automate the process to the greatest degree possible, while still allowing for a large measure of exception-handling and exercise of operator discretion.

In essence, the method involves two stages. In the first stage:

1. An incoming message is examined to determine whether it contains an Event Code (EEE-) matching an entry on your own station's Event watchlist and at least one Location Code matching one of the FIPS codes entered in your own station's Location watchlist. If so, then it is a message which, barring other considerations, should be re-broadcast (i.e., forwarded) in as timely manner as possible, involving as it does an Alert of regional relevance and at least a portion of the local geographical area. So the system flags the message for automatic forwarding, identifying it as "Auto-Forward Qualified."

The actual disposition of the forwarding, however, allows for some operational latitude in the second stage:

2. The system then determines whether the current mode of the system is Auto or Manual. If the former, then the message is re-broadcast automatically and immediately (as in the case of the EAN, discussed above). If the current mode is Manual, then the message remains in the Current Message Buffer and the system sets a 15-minute timer. If at the end of that time period the message has not been either sent manually (i.e., by direct operator command) or deleted (actually, dis-qualified for Auto-Forwarding), then the message is re-transmitted automatically, as above, without further intervention.

The virtue of this two-stage approach is that it allows the operator some discretion in the question of when to allow program to be interrupted, and still provide a timely Alert. For those broadcast periods when interruption is least desirable, the operator can set the system mode to Manual, and thus create a 15-minute window during which the most convenient moment for a program interrupt can be assessed, and the message sent at that time by command. If that moment never arrives, then the broadcast goes out nonetheless, at the end of 15 minutes. For all other times -- during unmanned or off-peak hours, say, or with remotely-controlled setups -- the system can be set to Auto, and all Auto-Forward Qualified messages received will be re-transmitted immediately.

AFQ: System Functions

As noted above, during initial processing, if the system analyzes the Event Code (EEE-) of the header for the presence of an EAN, EAT, or RMT identifier and finds none, then its next priority is to determine whether or not the message qualifies for Auto-Forwarding. It first looks for a match between the header Event Code and one of the Event Codes stored in the station's Events Watchlist (created by the operator as part of Setup -- see p. 44). If it finds a match, then it switches to examining the Locations Watchlist (also compiled during the Setup process -- see p. 47), to see if there is a Location Code in common with the Location Code(s) in the message header. If a single match is found (only one common FIPS Code is necessary) then the system discontinues further analysis and tags the message as Auto-Forward Qualified (AFQ).

Next the system mode is identified (Auto or Manual), and the header is written into the Receive Log and Current Message Buffers, overwriting whatever message is in the latter. If the mode is Auto, then the system goes into the message forwarding state and the following type of ALERT displays:

```
ALERT! (Auto-Fwd)
Blizzard Warning
Time: 01-28-97 21:10
Dur: 07 hrs, 00 min_
```

If the mode is Manual, the 15-minute timer is set and the Current Message is flagged as Delayed Forward. The ALERT! display and print occur, indicating on the Headline whether the message is Auto-Fwd or Delayed-Fwd.

In the case of an immediate auto-forward, the system then triggers the On-Air Relay, and sends the message from the Current Message Buffer through the Main Audio Output for broadcast, interrupting program. The Station ID as received in the message is replaced with the ID of your own station in the re-transmission.

As transmission begins, the system displays the **AUTO-FORWARD** screen, which displays the legend "Sending Header...," then "Replaying Voice...," then "Sending EOM..." If enabled, the printer produces a hard copy of the text interpretation, plus the ASCII version of the header itself, and the date/time stamp of transmission. Following transmission of the EOM, the system switches off the On-Air Relay, thus restoring program transmission, and returns to the Ready state.

In the case of a delayed forward, the system puts up the **DELAYED FWD** screen upon completion of reception, displaying the options for manual disposition. The message resides in the Current Message Buffer (and its audio, if any, in the Received Audio Buffer) until the operator deletes, sends it manually, or the 15-minute timer expires, in which case the system re-transmits the message automatically, following the sequence outlined in the preceding paragraphs. The timer is displayed in the upper right-hand corner of the screen. (A manual send has identical effects, except that the DEL-FWD Headline is displayed.) The manual operations are available from the displayed screen, and are identified to those under "Reviewing Messages and Logs."

```
DELAYED FWD     (15)
1 Review Msg
2 Send Msg
3 Delete Msg
```

NOTE: The **DELAYED FWD** screen cannot be exited until the message is disposed of by manual forwarding, deleting, or a timeout and subsequent Auto-Forward.

AFQ: Operator Tasks

This is the type of message that allows the most operator discretion in its handling.

If the ease of Auto-Forwarding outweighs concerns for unpredictable program interruption for certain times and situations, then set the system to Auto mode in those cases (see "Mode Select -- Setting Up for Manual/Automatic Forwarding and Local/Remote Operation," p. 57).

If you want to minimize the program effects of **E▫A▫S** interruption, and exert some measure of control over
the forwarding of messages, set the system to Manual mode for those times and circumstances when interruption is a concern.

When the system is in Auto mode and an AFQ (or RMT) is received, the relay of the message is completely automatic and immediate. Sending is equally automatic in Manual mode when the 15-minute timeout expires. In either Auto-Forward case, all you need to do with respect to the message itself is to integrate the printouts into the station log in accordance with customary practice.

For Manual mode, you have 15 minutes to decide when and if to air the message before it is automatically forwarded. To transmit the message manually, consult the "Forwarding the Current Message" procedure (p. 97). If it seems advisable not to send the message at all, then use the procedure "Deleting the Current Message from the Buffer" (p. 99).

(Note that this latter option does not actually remove the message from the buffer, but rather removes its AFQ flag, cancelling automatic forwarding.)

The same considerations apply (as for the Auto case) with regard to entering the printouts of the reception and transmission of the message. For either mode choice, if the printer happened to be in the disabled state during the reception and/or forwarding of the message, just consult "Reviewing the Message Logs." Enable the printer and follow the instructions for reviewing the Receive Log and/or the Transmit Log; the received AFQ will reside in the former, the forwarded version in the latter. Hard copies will be produced in the course of review.

The only other AFQ-related tasks concern the operations which its processing may have interrupted -- in particular, its overwriting of the Current Message Buffer. If the overwritten message happened to be a pre-existing Delayed Forward Message awaiting send or timeout, then that message will no longer Auto-Forward; it must be reconstituted from a review of the Receive Log and transmitted manually -- see the "Recovery from Message Interrupts" table (p. 68) for recovery.

Handling an Advisory Message

An Advisory (ADV) is a message with none of the above qualifications, i.e., non-EAN, non-RMT, and not qualified for auto-forwarding -- either by lack of an Event match, or a Location match, or both. Therefore, it does not concern a National Alert, a Required Test, or an Alert of local relevance. It is simply picked up as part of normal monitoring and is displayed (and printed) as an advisory (though conceivably, especially if the locations alerted are in close proximity to your own, it may anticipate an AFQ to be received later).

ADV: System Functions

If, upon analyzing the header, the system finds no EAN, EAT or RMT Event Code, and no match of both Event Code and one Location Code with the system Watchlists, then the message is tagged as an advisory. Clearly, a Required Weekly Test (RWT) transmitted by another station has advisory status, and unlike the RMT, no special priority distinctions.

Simultaneously, the system trips the Alert Relay and displays an Advisory screen, showing the summary information:

```
ALERT! (No Auto-Fwd)
Tornado Warning
Time: 08-18-97 14:32
Dur: 05 hrs, 30 min_
```

The printer (if enabled) generates a hard copy of the text interpretation and header.

Then the Alert Relay is switched off and the system -- and screen -- return to the Ready state.

ADV: Operator Tasks

The operator's only task as regards an Advisory is to enter the hard copy in the station log. The Advisory screen is identified by the phrase "No Auto-Fwd" in the Headline and can thus be easily distinguished from any other Alert.

If the printer is off-line during the receipt of an Advisory, or if the message for some reason requires review, or if should become necessary to re-transmit the message at a later time, the header of the message is stored in the Receive Log until expiration or replacement. Use the procedures in "Reviewing the Message Logs" (p.100)to accomplish any of these tasks. A Review with the printer enabled will produce hard copy, and that printout may be used in re-encoding the message if sending becomes necessary. See "Encoding and Sending Messages."

Conducting Required Tests

There are two types of FCC-mandated tests: The Required Weekly Test (RWT) and the Required Monthly Test (RMT). This section details the operator instructions for conducting both types. Bear in mind that whereas every station is obliged to transmit a Required Weekly Test, only designated sources initiate the transmission of Required Monthly Tests, with every other station obliged to receive, log and forward. Since we've covered incoming RWTs and the reception/forwarding of RMTs in the foregoing section, we'll be dealing here only with the sending operations. If your station or organization is not designated as a source of Required Monthly Tests, then you only need be concerned with the instructions pertaining to RWTs.

Conducting a Required Weekly Test (RWT)

The message for a Required Weekly Test is automatically formulated by the system, using the current time and date, along with the station information you supplied to the system from the **SYSTEM SETUP** menu, to produce the **E▫A▫S** header and EOM (the EBS tones are not required). If you have pre-recorded an Administrative Message (under option 7 of **SYSTEM SETUP**) then it will be automatically integrated as the audio voice segment of the RWT (if you've not yet recorded such a message, then the transmission will consist only of header and EOM). If you intend to broadcast a live announcement with the RWT, then you need to have the announcer standing by at the studio microphone.

Sending a Required Weekly Test with **E▫A▫S** involves only two keystrokes. Display the **READY** menu (by ESCing to it, if it's not already on-screen):

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
4 Log Review
5 Monitor Audio Chan
6 Mode Select
7 System Setup
```

Then select option 1 -- Req. Weekly Test. The system displays a confirmation screen, which also features the date and time of the last RWT transmitted from the unit (as an aid to determining wheter it's time to send again.)

```
REQUIRED WEEKLY TEST
Last Transmission:
11-13-96 14:53
ESC=Abort   ENT=Send
```

Press ENT to send the RWT message.

The system triggers the On-Air Relay, thus interrupting the program, and then relays the Required Weekly Test Message to the transmitter for broadcast. The Event Code of the header indicates an RWT, the Location Code is that of your station (as supplied in **SYSTEM SETUP**), and so is the Station ID. The effective time period is the default value of 00:15 (I5 minutes).

As the message is sent, the front panel of the **E▫A▫S** unit displays the progress of the transmission; if you're sending the Voice Message live, then the announcer should be cued at the beginning of the countdown.

After 30 seconds, the system sends the EOMs (live announcements must be completed by this point), which is indicated by the "Sending EOM" notification on the LCD screen. Then it cuts the On-Air Relay and restores normal program transmission.

If the currently selected voice mode in **SET UP RWT VOICE** is option 1: Use No Voice, the following progressive display appears on the screen as the On-Air Replay is tripped:

```
SEND REQ WEEKLY TEST
Sending Header ...  _

ESC=Abort
```

```
SEND REQ WEEKLY TEST
Sending Header ...

Sending EOM ...     _
```

The system indicates that it is sending the headers, and immediately afterwards sends the EOMs, the bottom displayed line providing that notification. Then the On-Air Relay is switched off and the system returns to the **READY** menu.

If the selected voice mode is option 2: Live Voice, then the following progression is displayed as the On-Air Relay is activated. After header transmission, the unit goes off the air while the live message is announced. The timer counts down from 30 seconds, and the message can be terminated at any point by pressing ENT, at which point EOMs are transmitted. Otherwise, EOMs are sent when the timer expires.

```
SEND REQ WEEKLY TEST
Sending Header ...
Live Msg <030>
ESC=Abort   ENT=Done
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Live Msg <000>
Sending EOM ...
```

In the case of a Recorded Voice Message, the following progressive display occurs. The recording is played following header transmission, and EOMs are sent automatically at its end.

```
SEND REQ WEEKLY TEST
Sending Header ...
Playing Voice ...
ESC=Abort
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Playing Voice ...
Sending EOM ...
```

During this process, if the printer is enabled, it will produce a printout for the Station Log, of which the following is an example:

```
Encoder Transmit Log:
A Broadcast Station or
Cable System has issued
REQUIRED WEEKLY TEST
for the following
counties/areas:
Nantucket MA on JANUARY
6, 1997 at 08:50 PM
effective until 09:05
PM, JANUARY 6, 1997.
Message transmitted on
JANUARY 6, 1997 at
08:50 PM from WHAT/FM.

EAS Protocol Text:
ZCZC-EAS-RWT-
025001+0015-0062050-
WHAT/FM-

Printed on SUNDAY
JANUARY 6, 1997 at
08:50 PM.
```

This concludes our discussion of the Required Weekly Test.

Conducting a Required Monthly Test (RMT)

As with the Required Weekly Test, the message for the Required Monthly Test is assembled automatically by the system once you select RMT as the Event in an Encoded Message. With the current time and date, and the station-specific information supplied by you during the Setup process, the system creates the **E▫A▫S** header and inserts the EBS tones and EOM signal.

You may pre-record the Monthly Test script as the audio voice segment of the RMT (which will be automatically inserted following the EBS tones), or you can opt to make a live announcement at time of

transmission. The former option requires a line-level microphone input to audio channel 6 and the announcer standing by when the recording is to be made. The latter requires the announcer standing by at the studio microphone when the test is to be conducted.

To send the RMT, refer to "Encoding and Sending Messages" (p. 81). Follow the encoding procedure described, selecting the Event Code "RMT" and a Duration of 15 minutes (00:15).

Following the initiation of RMT transmission, if the printer is enabled, it will produce a printout for the Station Log, similar in form to this one:

```
Encoder Transmit Log:
Primary Entry Point has
issued REQUIRED MONTHLY
TEST for the following
counties/areas:
Bernalillo NM on APRIL
9, 1997 at 10:21 AM
effective until 10:36
AM, APRIL 9, 1997.
Message transmitted on
APRIL 9, 1997 at
10:21 AM from RT/STA03.

EAS Protocol Text:
ZCZC-PEP-RMT-
035001+0015-0991021-
RT/STA03-

Printed on WEDNESDAY
APRIL 9, 1997 at
10:21 AM.
```

For those organizations which do not originate Required Monthly Tests, the reception and forwarding of RMTs initiated by a PEP or EAN is covered in the preceding section, "Receiving and Forwarding Messages" (p. 63).

Encoding and Sending Messages

The process of originating an **E▫A▫S** message is largely automatic; you need supply only the coded information specific to the emergency itself -- type of event, localities affected, expected duration -- and optionally record (or announce live) an accompanying voice message, then cue the transmission. The rest is done by the system itself: it assembles the **E▫A▫S** header; inserts the EBS tones into the message; times the recording and/or duration of the voice segment; assembles the EOM signal; and inserts the completed message into the broadcast at the mandated level, restoring normal program transmission when it is done.

In assembling the **E▫A▫S** header the system employs information already provided by you during the Setup process (Originator Code, Current Time/Date, Station ID), and prompts you for the emergency-specific information and voice message needed to complete the message. Once you select the Encode Message option the system begins prompting for the required information, and automatically moves to the next step in the process once that information has been provided.

Since the procedure is continuous and self-advancing from beginning to end, the step numbers in the instructions will also continually advance, even though we'll be referring to the stages (i.e., Enter Password, Select Event Code, etc.) in a discrete fashion.

1. Begin the process at the **READY** menu. (If it's not already on display, just ESC repeatedly from any screen or menu.)

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
4 Log Review
5 Monitor Audio Chan
6 Mode Select
7 System Setup
```

Entering the Password

2. Select option 2, to bring up the **ENCODE MSG PASSWD** screen.

```
ENCODE MSG PASSWD
Enter User Passwd
        [***]
ESC=Abort ENT=Accept
```

3. Key in your User Password. As you key in each digit the cursor will advance rightward to the next position.

   If you make an error, use the LEFT (◂) and RIGHT (▸) keys to position the cursor at the incorrect number(s) and key in the correct one(s).

4. When your 3-digit System Password appears correctly, press ENT for the system to accept the password and move automatically to the **EVENT:** screen. (Go on to the next procedure -- "Selecting the Event Code")

   If you have ENTered an incorrect password, the field will go blank and the cursor will resume its leftmost position. Go back to step 2 and key in the password correctly (you may need to look it up).

NOTE: You can exit this menu at by pressing ESC, but the encoding process will be aborted.

Return: ESC ⇒ **READY**

Encoding the EAS Header

With the provision of the correct password, you are now in the encoding process, and the system will prompt you for the information it needs to complete the message header: The Event Code for the type of alert, the Location Codes for the localities concerned, and the expected Duration of the event.

Selecting the Event Code (EEE-)

There are two alternative ways of indicating the appropriate Event Code for the alert you are about to send: 1) Keying in the 3-letter Event Code directly, or 2) Moving the cursor to the desired item in the displayed list.

You might choose the former method if you're familiar with the correct 3-letter code for the event and want to save the time involved in scrolling through the list.

Selecting the Event Code by Direct Keying

Entering the correct password has brought up the **EVENT:** screen, with the cursor indicating the first item in a list of Event (EEE) Codes and their interpretations. If you want to key in the 3-letter Event Code directly, then continue with step 5. If you prefer Selecting by moving the cursor to the desired item in the displayed Event Code list, then go to step 9 in the next procedure.

```
EVENT: [    ]    ▲▼
EAN:Emerg Act Notifi
EAT:Emerg Act Termin
NIC:National Info Ce
```

5. Press the LEFT (◄) key. The cursor moves into the blank 3-character field that appears in brackets in the Headline.

(Here is one of the few cases, alluded to earlier, in which the cursor can move into the Headline -- but in order for it to work, the cursor must be in the top displayed line below the Headline, though that item need not necessarily be at the top of the list.)

6. Key in the desired 3-letter Event Code. (You may wish to refer to the hard copy of the entire Event Code list in Appendix B.)

   Text is entered by cycling on the alphanumeric keys of the Keypad. With each pressing of a single key, it displays first the numeric value indicated on the key, then the alphabetic values so labeled -- one at a time, in order. For example, if you press the "2" key four times, it will display the following characters at the same cursor position, in succession: 2 ⇒ A ⇒ B ⇒ C. If you continue pressing the key, the cycle will repeat.

   At each cursor position, cycle to the character you want in spelling out the Event Code, and then use the RIGHT (▸) key to move the cursor and fill in the next character. Use both LEFT (◂) and RIGHT (▸) keys to move the cursor to make corrections, if necessary. (Note particularly that "Q" and "Z," normally unavailable on a standard telephonic keypad, can be accessed through the "1" key, which cycles these characters: 1 ⇒ Q ⇒ Z ⇒ /.)

   (Note also that you can abandon the process of direct keying at any time before selection, without aborting the screen altogether, simply by pressing the DOWN (▾) key. This will move the cursor out of the 3-character field and back into the menu proper. At this point, if you choose to, you can Select the Event by moving the cursor through the list. If this is the case, go to step 9, next procedure.)

7. When the Event Code appears correctly in the brackets, press the ENT key.

   If the Code you keyed is FCC-listed and correct, then the Event is selected and the **LOCATION [ST]** screen is automatically displayed. Go to step 11, in "Selecting the Location Codes."

   (Unless the Event being coded is an EAN or EAT; these national-level messages are automatically sent to all Locations, and no individual ones are selected. Instead, selection goes directly to the **DURATION** screen. In such a case, continue with step 19 of "Setting the Duration," below.)

   If the Code does not match an FCC-listed code, the **NEW EVENT:** screen is displayed, with the Code you have just keyed appearing in brackets, above the prompt "Are you sure?."

```
NEW EVENT:     [   ]
Are you sure?

ESC=No       ENT=Yes
```

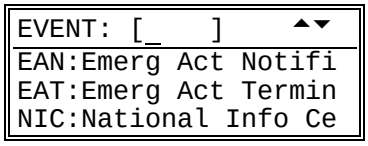
8. If the Code you keyed is in error, respond to the prompt with ESC; you will be returned to the **EVENT:** screen to re-Select. Go back to step 5 of this procedure.

NOTE: You can abort the selection entirely by pressing ESC; the Event Code will remain unselected, you will not be able to continue encoding, and you will be returned to the **READY** screen. If you wish to resume encoding, you must return to step 2).

Return: ESC ⇒ **READY**

Selecting the Event Code from the List

Entering the correct password has brought up the **EVENT:** screen, with the cursor indicating the first item in a list of Event (EEE) Codes and their interpretations. If you prefer moving the cursor to the desired item in the displayed Event Code list, then continue with step 9. If you want to key in the 3-letter Event Code directly, then go to step 5 in the preceding procedure.



9. Move the cursor, using the UP (▲) and/or DOWN (▼) keys, through the displayed list until it indicates the correct Event Code and interpretation.

   (The complete FCC Event Code list -- as it appears in Appendix B, except with some abbreviation of interpretations -- resides on the **E▫A▫S** system, and you can scroll throughout its length to any item.)

10. Press the ENT key to Select the Event and proceed automatically to the **LOCATION [ST]** screen.

    (Unless the Event being coded is an EAN, EAT or RMT; these national-level messages are automatically sent to all Locations, and no individual ones are selected. Instead, selection goes directly to the **DURATION** screen. In such a case, continue with step 19 of "Setting the Duration," below.)

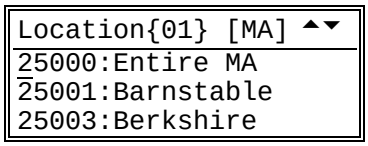
NOTE: You can abort the selection entirely by pressing ESC; the Event Code will remain unselected, you will not be able to continue encoding, and you will be returned to the **READY** screen. If you wish to resume encoding, you must return to step 2).

Return: ESC ⇒**READY**

Selecting the Location Codes (PSSCCC-)

Selecting the County Code (SSCCC)

Entering the appropriate Event Code has brought up the **LOCATION [ST]** screen. The "ST" stands for the abbreviation of the state in which your station is located (according to your Setup information), displayed in brackets in the Headline. In parentheses, between the legend "LOCATION" and the brackets, is the Location Counter. It displays the digits "01," indicating that this will be the first Location selected (up to 31 selections are allowed and the Location Counter keeps track). The cursor indicates the first item in a list of 5-digit FIPS Codes and their interpretations, which are the counties of your state, listed in alphabetical order.



11. If you wish to select county codes for the state currently displayed on the Headline, then go to step 15.

    If you wish to select counties for a different state than is currently displayed, then make sure the cursor is in the top display line (just below the Headline).

12. Press the LEFT (◂) key. The cursor moves up into the Headline, to indicate the first character of the state abbreviation.

13. Key in the abbreviation for the state whose counties you wish to select. (You can refer to the list of Location Codes in Appendix C, if necessary.)

    Text is entered by cycling on the alphanumeric keys of the Keypad. With each pressing of a single key, it displays first the numeric value indicated on the key, then the alphabetic values so labeled -- one at a time, in order. For example, if you press the "2" key four times, it will display the following characters at the same cursor position, in succession: 2 ⇒ A ⇒ B ⇒ C. If you continue pressing the key, the cycle will repeat.

    Cycle to the first character you want in spelling out the State abbreviation, then use the RIGHT (▸) key to move the cursor and fill in the second character. Use both LEFT (◂) and RIGHT (▸) keys to move the cursor to make corrections, if necessary. (Note particularly that "Q" and "Z," normally unavailable on a standard telephonic keypad, can be accessed through the "1" key, which cycles these characters: 1 ⇒ Q ⇒ Z ⇒ /.)

    [If you decide to abandon the process of keying in a new state abbreviation, just press the DOWN (▾) key twice. The cursor will move down to the second item in the list, and the abbreviation will reset to the formerly displayed one.]

14. When the state abbreviation is correct, press ENT. The screen will display the top of the new alphabetical list of counties and the cursor will move down to the first item.

    If you've keyed in a non-existent state abbreviation, then system will reset to the formerly displayed one. Go back to step 13 and re-key (and check the list in Appendix C -- some of those abbreviations can fool you.)

15. Using the UP (▴) and DOWN (▾) keys, move the cursor to indicate the code and interpretation for the county to which the Alert applies.

    Scrolling down past the end of a county list, or scrolling up past the beginning, will take you to the list for the state alphabetically succeeding or preceding the current one. (Except for Alabama (AL) and Wyoming (WY), which are the first and last states in the list.) The state abbreviation in the Headline will reset accordingly. Bear in mind that alphabetizing is governed by the full name of the state, not the abbreviation, e.g., AZ comes before AR because Arizona precedes Arkansas.

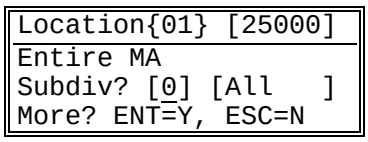
16. Select the indicated county by pressing ENT, and proceed automatically to the **LOCATION [FIPS#]** screen. Continue with step 17 in the next procedure, "Selecting the Subdivision Code."

NOTE: You can abort the selection entirely by pressing ESC; no Location Codes will remain selected, you will not be able to continue encoding, and you will be returned to the **EVENT:** screen. If you wish to resume encoding, you must re-enter the Event Code (viz., return to step 5).

Return: ESC ⇒ **EVENT:** / ESC ⇒ **READY**

Selecting the Subdivision Code (P)

Entering the appropriate county code has brought up the **LOCATION [FIPS#]** screen. The "FIPS#" displayed in brackets in the Headline is the state+county code you have selected in the previous screen. On the next line down, the interpretation of that code is displayed (i.e., the county name). The third line features the prompt "Subdiv?," with the cursor indicating a "0" in brackets, followed by another bracketed field displaying the word "All."



Keying in a number in the "Subdiv?" field selects a particular portion of the county, according to the following diagram (the interpretation of that numbered selection, as it appears in the second bracketed field, is also shown):

1 [N.West]	**2** [N.Cen.]	**3** [N.East]
4 [W.Cen.]	**5** [Cen.]	**6** [E.Cen.]
7 [S.West]	**8** [S.Cen.]	**9** [S.East]

0 = [All]

17. Key in the number corresponding to the portion of the county affected by the event. If the alert concerns the entire county, leave the "Subdiv?" field at "0."

    The second bracketed field will display the appropriate interpretation of the county subdivision you have keyed.

18. If you wish to add more counties to the Location list for this message (or more subdivisions of the currently displayed county), press ENT. You will be returned to the **LOCATION [ST]** screen with the Location Counter incremented by one. Go back to step 11 of the previous procedure, "Selecting the County Code."

    (Note that if the Location Counter already indicates "31," the maximum number of Location codes allowed in the list, then you will not return to the **LOCATION [ST]** screen, but proceed as though you had terminated the list, moving on to the **DURATION** screen.)

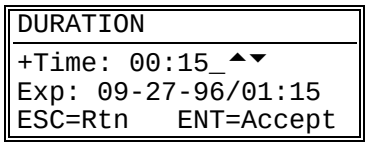
    If this is the last Location you wish to add to the list, then press ESC; the system accepts the list and displays the **DURATION** screen. Go on to step 19 in the following procedure, "Setting the Duration."

NOTE: Pressing ESC once terminates the Location list and sends you to **DURATION** to complete the encoding process**.** Pressing ESC twice takes you from **DURATION** back to **LOCATION [ST]**, where you can resume Location selection, if so desired. Pressing ESC a third time returns you to the **EVENT:** screen, which is the only way to abort the selection entirely; no Location Codes will remain selected. If you wish to resume encoding, you must re-enter the Event Code (viz., return to step 5).]

Return: ESC ⇒ **DURATION** / ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

Setting the Duration (+TTTT)

Entering the appropriate Location Code(s) -- or an EAN, EAT or RMT Event --has brought up the **DURATION** screen, which initially displays the current date and time on the third line (the line is labelled "Exp.," for "Expiration." The cursor is located in the line just above, following the prompt "+Time:" and a counter initially set to "00:15."



19. Indicate the effective time interval for the alert, by pressing the UP (▲) and DOWN (▼) keys to increment or decrement the time counters. The +Time counter proceeds by 15-minute intervals between 00:15 and 01:00 (that is, for the first hour) and by 30-minute intervals thereafter.

    There are two approaches to setting the effective time interval: by duration and by expiration.

    If you know the expected duration of the Event, starting from the present, then observe the +Time counter as you increment, halting when that duration is reached. For example, if you are informed that an alert will be in effect for the next three-and-a-half hours, then increment the time counter until it reads "03:30." The Current time/date initially displayed on the line below will also be incremented by identical intervals, to produce an Expiration time/date automatically. To continue the example, if it's 11 PM on January 2, 1997 and you increment the +Time counter to 03:30 hours, the Expiration counter will read "01-03-97/02:30." That is, the alert will expire three-and-a-half hours later, at 2:30 AM on January 3.

    Conversely, if you know the expiration time for the Event, then observe the Current time/date counter as you increment, and stop when it reaches (or just exceeds) the known expiration time. The +Time counter will then reflect the expected duration (time interval between the current time and the expiration time). For example, if it's presently 9:04 AM on April 12, 1997 and you are informed that an alert is effective until 10:30 AM, increment the counter until the Expiration time reads "04-12-97/10:34" (since the counter moves in 30-minute increments after the first hour, 10:34 is the "first stop" past the actual expiration time). The reading on the +Time counter (reflecting duration of alert) will be "01:30."

20. When the times appear correctly, press ENT to set the Duration and bring up the **VOICE MSG** screen. Go on to step 21 in the next procedure.

NOTE: You can abort the time interval selection entirely by pressing ESC; no +Time will remain selected, you will not be able to continue encoding, and you will be returned to the **LOCATION [ST]** screen. If you wish to resume encoding, you must re-enter the Location Code(s) (viz., return to step 11).

Return: ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

(unless Event is an EAN, EAT, or RMT, in which case **LOCATION [ST]** / ESC is omitted)

Selecting a Voice Message Format

Recording a Voice Message

Entering a Duration time for the Event, or choosing to abort or redo a Voice Message recording, has brought up the **VOICE MSG** menu. This screen offers the choices of Recording a Voice Message, Sending a Message (with live announcement), and Sending a Message Without Voice. If you plan to record a Voice Message, then there should be a line-level microphone input to audio channel 6 on the **E▫A▫S** back panel (the recording channel) and the announcer should be prepared. If you intend a live announcement, then the announcer should be standing by at the studio microphone at transmit time.

```
VOICE MSG OPTION
1 Record Voice
2 Send w/ Live Audio
3 Send w/o Voice
```

21. If you wish to record (or re-record) a Voice Message, up to 2 minutes in length, to accompany the **E▫A▫S** transmission you are encoding, select option 1 and cue the announcer.

    The 2-minute timer begins to run and the **RECORDING VOICE MSG** screen is displayed, with elapsed time indicated by the counter enclosed in angle brackets. Continue with step 22, below.

    If you wish to send the **E▫A▫S** Message with a Live Announcement, up to 2 minutes in length, then select option 2 and proceed to the **TRANSMIT NOW** screen; go on to step 27 in the next procedure but one, "Sending an **E▫A▫S** Message."

    To omit the Voice Message portion entirely from the transmission, select option 3 and proceed directly to the **TRANSMIT NOW** screen. Go on to step 26 in the next procedure but one, "Sending an **E▫A▫S** Message."

```
RECORDING VOICE MSG
Time:  <120> sec
Level:|       □    |
ESC=Abort  ENT=Done
```

22. Adjust the audio level, if necessary. The on-screen gauge indicates recording audio level, to be controlled from the audio source. Optimum recording level is at a zero point (blank rectangle) which corresponds to -6 dB.

23. When recording is done, press ENT to accept the Voice Message and bring up the **REVIEW VOICE MSG** screen. Go on to step 24 in the next procedure, "Reviewing the Voice Message."

    (Note that at the end of 2 minutes, recording will cease automatically, and you will proceed to the **REVIEW VOICE MSG** screen whether or not message is complete. If this occurs, go on to steps 24-25 in the next procedure and consult the "Redoing the Voice Message" provision.)

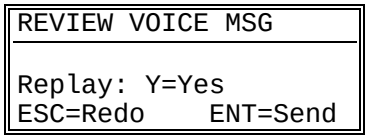
NOTE: The recording process may be aborted at any time by pressing ESC. This is not to be confused with accepting the recording at a time of less than 2 minutes, as in step 23 above. Aborting with ESC discards the recording and returns you to the **VOICE MSG** menu. If you wish to resume encoding, you must re-select a Voice Message option in step 21, above.

Return (from **RECORDING VOICE MSG**): ESC ⇒ **VOICE MSG** / ESC ⇒ **DURATION** / ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

(unless Event is an EAN, EAT, or RMT, in which case **LOCATION [ST]** / ESC is omitted)

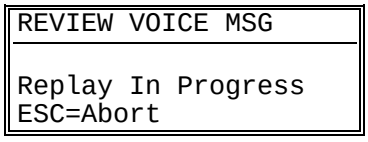
Reviewing a Voice Message

Recording (or re-recording) a Voice Message brings you to the **REVIEW VOICE MSG** screen, which displays the prompt "Replay Y=Yes, N=No" above a playback time indicator.



24. If you want to hear the Voice Message played back, press the "Y" key (= "9" key). The Voice Message will replay to the speaker/auxiliary audio as the displayed indicator shows elapsed time. Press "Y" again for additional replays, if desired.

    To dispense with the playback, press the "N" key (= "6" key). The recording will be accepted and you will proceed to the **SEND MSG** screen. Go on to step 26 in the next procedure.



25. If you review the Voice Message and it is satisfactory, then press ENT to accept the recording and proceed to the **TRANSMIT NOW** screen. Go on to step 26 in the next procedure.

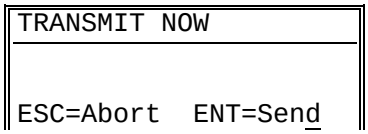
    If you want to redo the Voice Message, or omit it entirely, press ESC. You will be returned to the **TRANSMIT** screen, where you can indicate whether or not you wish to re-record the message, starting from step 21 (preceding procedure).

Return: ESC ⇒ **VOICE MSG /** ESC ⇒ **DURATION** / ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

(unless Event is an EAN, EAT, or RMT in which case **LOCATION [ST]** / ESC is omitted)

Sending an EAS Message

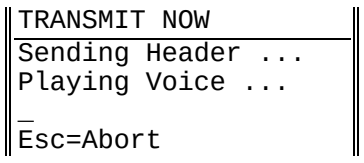
Your **E▫A▫S** message is now fully encoded and you have reached the **TRANSMIT NOW** screen, either by opting to send a message without a Voice Message, or to send with a Live Announcement, or by recording and reviewing a Voice Message and responding affirmatively to the "Send" option. Note that if the system is in Auto mode, a Live Announcement cannot be sent. If such is the case, you must ESC out of the Encode, Set System mode to Manual, and re-encode the message.

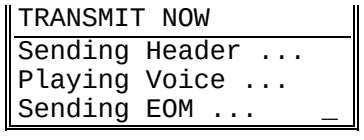


26. To transmit the encoded **E▫A▫S** message with a Live Announcement, go on to step 27.

    To transmit the encoded **E▫A▫S** message with no Voice Message, or a Recorded Voice Message, press ENT.

    The system then triggers the On-Air Relay (and Indicator), interrupting the program and transmitting the encoded message over the air, displaying each stage of transmission on the screen as it occurs ("Sending Header," "Playing Voice" if you have provided a Recorded Voice Message, and "Sending EOM"). If you have provided a Recorded Voice Message, the display continues as follows, progressively indicating headers, then Voice as the speaker/auxiliary monitor carries the audio, then EOM.





    If you have sent a message with no voice, then the following progressive display continues; with the EOMs immediately following the Header and EBS tones.

```
TRANSMIT NOW
Sending Header ...
                 _
ESC=Abort
```

```
TRANSMIT NOW
Sending Header ...

Sending EOM ...    _
```

After the EOMs are sent, the system restores normal program transmission, switching off the On-Air Relay and Indicator, and writes the message header into both the Transmit buffer and the Current Message Buffer. Then it displays the **SEND MSG AGAIN** screen. Go on to step 28.

27. Have the announcer stand by at the studio microphone; press ENT.

```
TRANSMIT NOW
Sending Header ...
Live Msg Time: <120>
ESC=Abort   ENT=Done
```

The system then triggers the On-Air Relay (and Indicator), interrupting the program and transmitting the encoded header (plus EBS tones, if enabled) over the air, displaying the phrase, "Sending Header." When the Header and Tones have been transmitted, the system switches off the On-Air Relay, and returns control to the console.

The prompt "Live Msg?" appears on-screen, which is the signal for the operator to cue the announcer. The system starts a 2-minute timer; the screen displays a 120-second countdown and the prompt to press ENT to send the EOM.

Press ENT when the announcement is completed. The system will re-trigger the On-Air relay, interrupting program again and transmitting the EOM. If the 2-minute timer expires before EOM is selected manually, the system will cut in and send the EOM automatically.

After the EOMs are sent, the system restores normal program transmission, switching off the On-Air Relay and Indicator, and writes the message header into both the Transmit buffer and the Current Message Buffer.

Then it displays the **SEND MSG AGAIN** screen.

```
SEND MSG AGAIN?


ESC=No       ENT=Yes
```

28. To return the system to the **READY** screen, and the Ready state, press ESC.

    To re-transmit the **E▫A▫S** message, press ENT. You will be returned to the **TRANSMIT NOW** screen, at which point you repeat the procedure from step 26, above. At its end you will return to the **TRANSMIT NOW** screen and the choice presented at this step.

NOTE: You can abort the process at the **SEND MSG** prompt by pressing ESC, which returns you to the **VOICE MSG** screen. If you wish to resume the process, you must select an option and continue from step 21, above. Once transmission has begun, however, aborting the send by pressing ESC returns you directly to the **READY** menu. The encoded information is discarded and the message is not written to the Transmit Log and Current Message Buffers.

Return from the **TRANSMIT NOW** prompt, if you recorded a Voice Message, is: ESC ⇒ **REVIEW VOICE MSG /** ESC ⇒ **VOICE MSG** / ESC ⇒ **DURATION** / ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

Return from the **TRANSMIT NOW** prompt, if you <u>didn't</u> record a Voice Message, is: ESC ⇒ **VOICE MSG** / ESC ⇒ **DURATION** / ESC ⇒ **LOCATION [ST]** / ESC ⇒ **EVENT:** / ESC ⇒ **READY**

(in either of the above cases, if the Event is an EAN, EAT, or RMT, **LOCATION [ST]** / ESC is omitted)

Return from **TRANSMIT NOW**, while transmission is in progress, is: ESC ⇒ **READY**

Return from **SEND MSG AGAIN** is: ESC ⇒ **READY**

Reviewing Messages and Logs

There are three ways in which **E▫A▫S** stores receptions and transmissions for later review:

- The *Receive Log* stores the headers of the ten most recently received messages, listed from newest to oldest. As new messages come in, the older ones are displaced off the list.
- The *Transmit Log* stores the headers of the ten most recently transmitted messages, listed and updated in similar fashion.
- The *Current Message Buffer* stores only the single most recent message header, whether received or transmitted, until a new transmission or reception overwrites it. A copy remains in the appropriate Log, however, and is saved or discarded accordingly. The Received Audio buffer saves the Voice Message portion (if any) of the most recent message, until overwritten by a succeeding reception or recording of a Voice Message.

You have the option of reviewing, forwarding, or deleting at any time the last message either received or sent. You can also review the contents of both message logs, and implement the Master Reset function by erasing their contents.

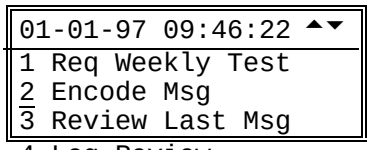
Reviewing, Deleting, or Forwarding the Current Message

Reviewing the Current Message -- that is, the very latest message either transmitted or received (and referred to alternatively as "Last Message") -- means displaying it in full, printing it (provided the printer is on-line), and replaying its audio portion (locally, not over the air). Typically, you would use this function to examine a message on Delayed Forward status, to determine whether it merits delayed automatic forwarding, immediate manual forwarding, or deletion. However, any most recently received or transmitted message can be re-examined in this fashion, particularly if you require hard copy and the printer was not enabled at the time of reception or transmission.

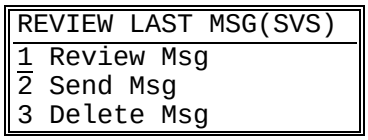
If you are in receipt of a Delayed Forward message, the **DELAYED FWD** menu (which is identical to the **REVIEW MSG** menu except for the Headline) will come up on the screen automatically. See "Handling an Auto-Forward Qualified Message," p. 72 for discussion.

```
DELAYED FWD     (15)
1 Review Msg
2 Send Msg
3 Delete Msg
```

Otherwise, to perform a Current Message review, you need the **READY** menu on-screen, so if it's not currently displayed, press ESC until it comes up:



Now select option 3 -- Review Last Msg. :



The **REVIEW MSG** menu comes up with the type of event it concerns displayed on the Headline (in this case, a Severe Weather Statement). If the most recent message has been deleted previously or has expired, or none have yet been sent or received, the display will read "No message" below the Headline and no options will be shown. In such a case, there is nothing to review (or forward, or delete) and you can simply ESC back to the **READY** menu.

Note that you have the option, not only of reviewing the message, but of forwarding and/or deleting it as well.

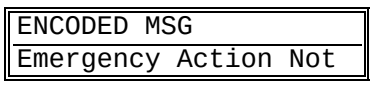
Reviewing the Current Message

Access: **READY** / 3

1. Select option 1 (assuming that you want to review the message before performing either of the other operations -- which may not always be necessary.

   The screen displays the summary information for the last message received or transmitted, and replays the audio portion (to the speaker/monitor). This initial display is followed by scrolling of the full text interpretation of the message. Scrolling occurs in three-second steps, advancing one line at a time, until the end of the text, at which point the **REVIEW MSG** menu returns to the screen. At the same time the display begins, if the printer is enabled, the system also prints out the text interpretation.

   A review of transmitted or Auto-Forwarded message produces the following types of screens:



```
Time: 11-22-96 13:25
Dur: 00 hrs, 15 min_
```

```
ENCODED MSG (ENT=OK)
National Weather
Service has issued
EMERGENCY ACTION   _
⇓         ⇓        ⇓
```

A review of an advisory message presents the following types of display:

```
ALERT! (No Auto-Fwd)
Tornado Warning
Time: 11-21-96 18:03
Dur:  00 hrs, 15 min_
```

```
ALERT! (ENT=OK)
National Weather
Service has issued
TORNADO WARNING for_
⇓         ⇓        ⇓
```

2. If you don't wish to observe the display scroll, press ENT at the "ENT=OK" prompt to return to the **REVIEW MSG** menu. The printout will continue regardless.

3. To terminate the printout, press ESC while the display scroll is in effect.

   To manually forward a Current Message, go on to the next procedure. To delete a Current Message go on to the procedure following that.

Return: ESC ⇒ **READY**

Forwarding the Current Message

Access: **READY** / 3 ⇒ **REVIEW LAST MSG**

1. Select option 2. **TRANSMIT NOW** screen appears.

```
TRANSMIT NOW
Sending Header ...
                _
ESC=Abort
```

2. To forward the message stored in the Current Message Buffer, press ENT.

   The system then triggers the On-Air Relay (and LED), interrupting the program and transmitting the message over the air, displaying first the phrase, "Sending Header."

```
TRANSMIT NOW
Sending Header ...

Sending EOM ...    _
```

   If the original transmission or reception included a Voice Message, and if the Received Audio Buffer has not been overwritten in the meantime, then the screen displays "Playing Voice" after the EBS tones, as the Voice Message is transmitted. The speaker/auxiliary monitor carries the audio.

   If there is no Voice Message associated with the header, the system offers the opportunity of sending a

   displays "Playing Voice" only briefly and plays no audio. Printout of the text interpreter proceeds.

3. In either case, the system then displays the phrase, "Sending EOM." After the EOMs are sent, the system restores normal program transmission, switching off the On-Air Relay and Indicator, and writes the message header into the Transmit Log (the message already resides in the Current Message Buffer) identifying your status as the forwarding agent.

   Then the system displays the **SEND MSG AGAIN** screen.

```
SEND MSG AGAIN?


ESC=No       ENT=Yes
```

To return the system to the **READY** screen, and the Ready state, press ESC.

If you want to re-transmit the message, press ENT. You will be returned to the **TRANSMIT NOW** screen, at which point you repeat the procedure from step 3, above. At its end you will return to the **SEND MSG AGAIN** screen and the choice presented at this step.

NOTE: You can abort the process at the **TRANSMIT NOW** prompt by pressing ESC, which returns you to the **REVIEW LAST MSG** screen. If you wish to resume the process, you must re-select option 2 and continue from step 1, above. Once transmission has begun, however, aborting the send by pressing ESC returns you directly to the **READY** menu, as does an ESC from the **SEND MSG AGAIN** screen.

Return from **TRANSMIT NOW**: ESC ⇒ **REVIEW LAST MSG /** ESC ⇒ **READY**

Return from **TRANSMIT NOW** while transmission is in progress: ESC ⇒ **READY**

Return from **SEND MSG AGAIN**: ESC ⇒ **READY**

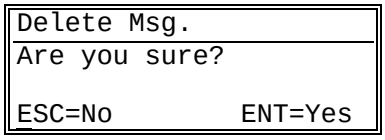
Deleting the Current Message From the Buffer

The option of deleting the Current Message is intended to cover the case in which a message flagged for Delayed Forward resides in the buffer, and the operator determines that forwarding is not required. By allowing for deletion before the 15-minute Delayed Forward timeout has elapsed, automatic forwarding can be averted. In this regard, it's worthwhile to note that such a deleted message is not actually removed from the buffer; in point of fact, it is simply disqualified as an Auto Forward message, and allowed to be overwritten by the next message received or sent.

Because of the similarity in menu structure, current messages can also be deleted from the **REVIEW LAST MSG** screen.

Access: **READY** / 3 ⇒ **REVIEW LAST MSG**

1. Select option 3. **DELETE MSG** screen appears, displaying the prompt "Are you sure?"



2. If you're not certain about deleting the message, press ESC and you will be returned to the **READY** menu.

3. If you are certain about the deletion, press ENT and return to the **READY** menu. The message will no longer be accessible to review, and any attempt to Review it will meet with the "No message" indication described above. A copy of the header will remain in the Receive or Transmit Log, however (until it is updated out), and can be reviewed by one of the two procedures that follow.

Return: ENT *or* ESC ⇒ **READY**

Reviewing the Message Logs

To review the contents of either the Receive Log or the Transmit Log (listing the 10 messages most recently received or transmitted, respectively) -- or to implement Master Reset by deleting the contents of both logs -- access the **LOG REVIEW** menu by selecting option 4 from the **READY** menu.

```
LOG REVIEW          ▲▼
1 Receive Log
2 Transmit Log
3 Erase Logs
```

The **LOG REVIEW** menu offers the option of reviewing either log -- or of erasing both, which is the equivalent to performing a Master Reset of the system.

Reviewing the Receive Log

1. Select option 1. **RECEIVE LOG** screen appears, with the cursor marking the first entry in the log. Each message entry, up to a maximum of 10, consists of the Event Code (EEE-) from the header of that message plus a number (in parentheses) indicating its order in the Log. That order, from top of list to bottom, from 1 to 10, goes from earliest received to latest. Only the first three entries are on display as the screen comes up; the remainder must be scrolled to.

```
RECEIVE LOG          ▲▼
TOR   (1)
FLW   (2)
TOA   (3)
RWT   (4)
SVS   (5)
SVR   (6)
TOA   (7)
NPT   (8)
TOA   (9)
RWT   (10)
```

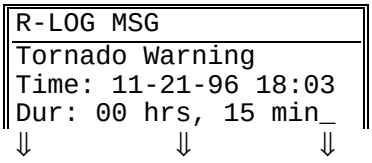
   No entries will appear if the log is empty.

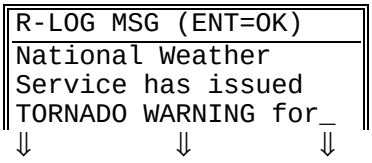
2. Using the UP (▲) and DOWN (▼) keys, move the cursor to indicate the entry that you wish to review. Press ENT to choose that item for review. The screen displays the prompt "[Y=Review]" next to the entry.

3. Press "Y" to review that entry. (Or press any other key to remove the prompt, and the selection, if you change your mind.)

   The **R-LOG MSG** screen appears, which is a duplicate of the original **ALERT** screen for that message, except for the headline. It is displayed for 3 seconds before the text interpretation of the

message begins to scroll. If enabled, the printer begins to print the interpretation immediately upon selection. When the scroll is completed, display returns to the **RECEIVE LOG** screen.





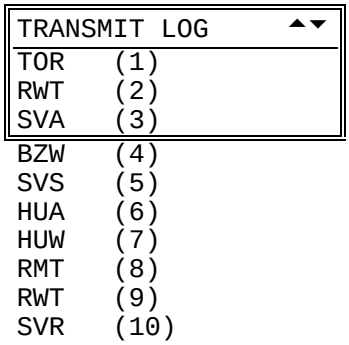
4. To select another log entry for review, return to step 2, above. Otherwise, press ESC to return to the **LOG REVIEW** menu, from which you may choose to review messages in the Transmit Log (see step 1, next procedure).

NOTE: To terminate the scroll before completion, press ENT. To terminate the print, press ESC during the scroll.

Return: ESC *or* ENT ⇒ **LOG REVIEW** / ESC ⇒ **READY**

Reviewing the Transmit Log

1. Select option 2. **TRANSMIT LOG** screen appears, with the cursor marking the first entry in the log. Each message entry, up to a maximum of 10, consists of the Event Code (EEE-) from the header of that message plus a number (in parentheses) indicating its order in the Log. That order, from top of list to bottom, from 1 to 10, goes from earliest sent to latest. Only the first three entries are on display as the screen comes up; the remainder must be scrolled to.

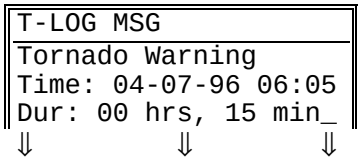


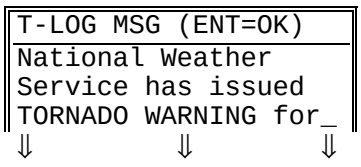
   Again, no entries will appear if the log is empty.

2. Using the UP (▲) and DOWN (▼) keys, move the cursor to indicate the entry that you wish to review. Press ENT to choose that item for review. The screen displays the prompt "[Y=Review]" next to the entry.

3. Press "Y" to review that entry. (Or press any other key to remove the prompt, and the selection, if you change your mind.)

   The **T-LOG MSG** screen appears, which is a duplicate of the original **ALERT** screen for that message, except for the headline. It is displayed for 3 seconds before the text interpretation of the message begins to scroll. If enabled the printer begins to print the interpretation immediately upon selection. When the scroll is completed, display returns to the **TRANSMIT LOG** screen.





4. To select another log entry for review, return to step 2, above. Otherwise, press ESC to return to the **LOG REVIEW** menu, from which you may choose to review messages in the Receive Log (see step 1, previous procedure).

NOTE: To terminate the scroll before complete, press ENT. To terminate the print, press ESC during the scroll.

Return: ESC *or* ENT ⇒ **LOG REVIEW** / ESC ⇒ **READY**

Invoking the Master Reset

1. To clear all buffers and to reset the system in the event that internal memory is compromised, select option 3. **DELETE ALL MSGS** screen comes up, displaying prompt "Are you sure?"

```
DELETE ALL MSGS
Are You Sure?

ESC=No       ENT=Yes
```

2. If you are not sure, then press ESC and return to the **LOG REVIEW** menu. Otherwise, proceed.

3. Press ENT. All buffers are cleared, while system locks into the current screen for approximately 10-15 seconds, while displaying prompt, "Please Wait..."

```
DELETE ALL MSGS
Are You Sure?

Please Wait...      _
```

4. When the **READY** menu appears, cycle the power on the system by disconnecting then reconnecting the power cord at the back of the unit. When the system is powered up again, the system will run through its self-test, and display the **VERSION** screen. Then the **READY** screen will come up and the system will be in the Ready state.

Return: ESC ⇒ **LOG REVIEW** / ESC ⇒ **READY** *or* ENT ⇒ **READY** ⇒ powerup ⇒ **VERSION** ⇒ **READY**

APPENDICES

Appendix A: Originator Codes

EAS Originator Codes

Originator	ORG-Code
Emergency Action Notification Network	EAN
Primary Entry Point System	PEP
National Weather Service	WXR
Civil authorities	CIV
Broadcast station or cable system	EAS

Appendix B: Event Codes

EAS Event Codes

Nature of Activation	EEE-Code	
Emergency Action Notification (National only)	EAN	
Emergency Action Termination (National only)	EAT	
National Information Center	NIC	
National Periodic Test	NPT	
Required Monthly Test	RMT	
Required Weekly Test	RWT	
Tornado Watch	TOA	
Tornado Warning		TOR
Severe Thunderstorm Watch	SVA	
Severe Thunderstorm Warning	SVR	
Severe Weather Statement	SVS	
Special Weather Statement	SPS	
Flash Flood Watch	FFA	
Flash Flood Warning	FFW	
Flash Flood Statement	FFS	
Flood Watch	FLA	
Flood Warning	FLW	
Flood Statement	FLS	
Winter Storm Watch	WSA	
Winter Storm Warning	WSW	
Blizzard Warning		BZW
High Wind Watch	HWA	
High Wind Warning	HWW	
Hurricane Watch	HUA	
Hurricane Warning	HUW	
Hurricane Statement	HLS	
Tsunami Watch	TSA	
Tsunami Warning	TSW	
Evacuation Immediate	EVI	
Civil Emergency Message	CEM	
Practice/Demo Warning	DMO	
Administrative Message	ADR	

Appendix C: FIPS Codes

FIPS Codes (SSCCC-)

ALABAMA (AL) (01)

001 Autauga
003 Baldwin
005 Barbour
007 Bibb
009 Blount
011 Bullock
013 Butler
015 Calhoun
017 Chambers
019 Cherokee
021 Chilton
023 Choctaw
025 Clarke
027 Clay
029 Cleburne
031 Coffee
033 Colbert
035 Conecuh
037 Coosa
039 Covington
041 Crenshaw
043 Cullman
045 Dale
047 Dallas
049 DeKalb
051 Elmore
053 Escambia
055 Etowah
057 Fayette
059 Franklin
061 Geneva
063 Greene
065 Hale
067 Henry
069 Houston
071 Jackson
073 Jefferson
075 Lamar
077 Lauderdale
079 Lawrence
081 Lee
083 Limestone
085 Lowndes
087 Macon
089 Madison
091 Marengo
093 Marion
095 Marshall
097 Mobile
099 Monroe
101 Montgomery
103 Morgan
105 Perry
107 Pickens
109 Pike
111 Randolph
113 Russell
115 St. Clair
117 Shelby
119 Sumter
121 Talladega
123 Tallapoosa
125 Tuscaloosa
127 Walker
129 Washington
131 Wilcox
133 Winston

ALASKA (AK) (02)

013 Aleutians East
016 Aleutians West
020 Anchorage
050 Bethel
060 Bristol Bay
070 Dillingham
090 Fairbanks N.Star
100 Haines
110 Juneau
122 Kenai Peninsula
130 Ketchikan Gatew
150 Kodiak Island
164 Lake and Penins
170 Matanuska-Susit
180 Nome
185 North Slope
188 NW Arctic
201 Prince of Wales
220 Sitka
231 Skagway-Yakutat
240 SE Fairbanks
261 Valdez-Gordova
270 Wade Hampton
280 Wrangell-P'burg
290 Yukon-Koyukuk

ARIZONA (AZ) (04)

001 Apache
003 Cochise
005 Coconino
007 Gila
009 Graham
011 Greenlee
012 La Paz
013 Maricopa
015 Mohave
017 Navajo
019 Pima
021 Pinal
023 Santa Cruz
025 Yavapai
027 Yuma

ARKANSAS (AR) (05)

001 Arkansas
003 Ashley
005 Baxter
007 Benton
009 Boone
011 Bradley
013 Calhoun
015 Carroll
017 Chicot
019 Clark
021 Clay
023 Cleburne
025 Cleveland
027 Columbia
029 Conway
031 Craighead
033 Crawford
035 Crittenden
037 Cross
039 Dallas
041 Desha
043 Drew
045 Faulkner
047 Franklin
049 Fulton
051 Garland
053 Grant
055 Greene
057 Hempstead
059 Hot Spring
061 Howard
063 Independence
065 Izard
067 Jackson
069 Jefferson
071 Johnson
073 Lafayette
075 Lawrence
077 Lee
079 Lincoln
081 Little River
083 Logan
085 Lonoke
087 Madison
089 Marion
091 Miller
093 Mississippi
095 Monroe
097 Montgomery
099 Nevada
101 Newton
103 Ouachita
105 Perry
107 Phillips
109 Pike
111 Poinsett
113 Polk
115 Pope
117 Prairie
119 Pulaski
121 Randolph
123 St. Francis
125 Saline
127 Scott
129 Searcy
131 Sebastian
133 Sevier
135 Sharp
137 Stone
139 Union
141 Van Buren
143 Washington
145 White
147 Woodruff
149 Yell

CALIFORNIA (CA) (06)

001 Alameda
003 Alpine
005 Amador
007 Butte
009 Calaveras
011 Colusa
013 Contra Costa
015 Del Norte
017 El Dorado
019 Fresno
021 Glenn
023 Humboldt
025 Imperial
027 Inyo
029 Kern
031 Kings
033 Lake
035 Lassen
037 Los Angeles
039 Madera
041 Marin
043 Mariposa
045 Mendocino
047 Merced
049 Modoc
051 Mono
053 Monterey
055 Napa
057 Nevada
059 Orange
061 Placer
063 Plumas
065 Riverside
067 Sacramento
069 San Benito
071 San Bernardino
073 San Diego
075 San Francisco
077 San Joaquin
079 San Luis Obispo
081 San Mateo
083 Santa Barbara
085 Santa Clara
087 Santa Cruz
089 Shasta
091 Sierra
093 Siskiyou
095 Solano
097 Sonoma
099 Stanislaus
101 Sutter
103 Tehama
105 Trinity
107 Tulare
109 Tuolumne
111 Ventura
113 Yolo
115 Yuba

COLORADO (CO) (08)

001 Adams
003 Alamosa
005 Arapahoe
007 Archuleta
009 Baca
011 Bent
013 Boulder
015 Chaffee
017 Cheyenne
019 Clear Creek
021 Conejos
023 Costilla
025 Crowley
027 Custer
029 Delta
031 Denver
033 Dolores
035 Douglas
037 Eagle
039 Elbert
041 El Paso
043 Fremont
045 Garfield
047 Gilpin
049 Grand
051 Gunnison
053 Hinsdale
055 Huerfano
057 Jackson
059 Jefferson
061 Kiowa
063 Kit Carson
065 Lake
067 La Plata
069 Larimer
071 Las Animas
073 Lincoln
075 Logan
077 Mesa
079 Mineral
081 Moffat
083 Montezuma
085 Montrose
087 Morgan
089 Otero
091 Ouray
093 Park
095 Phillips
097 Pitkin
099 Prowers
101 Pueblo
103 Rio Blanco
105 Rio Grande
107 Routt
109 Saguache
111 San Juan
113 San Miguel
115 Sedgwick
117 Summit
119 Teller
121 Washington
123 Weld
125 Yuma

CONNECTICUT (CT) (09)

001 Fairfield
003 Hartford
005 Litchfield
007 Middlesex
009 New Haven
011 New London
013 Tolland
015 Windham

DELAWARE (DE) (10)

001 Kent
003 New Castle
005 Sussex

DISTRICT OF COLUMBIA (DC) (11)

001 District

FLORIDA (FL) (12)

001 Alachua
003 Baker
005 Bay
007 Bradford
009 Brevard
011 Broward
013 Calhoun
015 Charlotte
017 Citrus
019 Clay
021 Collier
023 Columbia
025 Dade
027 DeSoto
029 Dixie
031 Duval
033 Escambia
035 Flagler
037 Franklin
039 Gadsden
041 Gilchrist
043 Glades
045 Gulf
047 Hamilton
049 Hardee
051 Hendry
053 Hernando
055 Highlands
057 Hillsborough
059 Holmes
061 Indian River
063 Jackson
065 Jefferson
067 Lafayette
069 Lake
071 Lee
073 Leon
075 Levy
077 Liberty
079 Madison
081 Manatee
083 Marion
085 Martin
087 Monroe
089 Nassau
091 Okaloosa
093 Okeechobee
095 Orange
097 Osceola
099 Palm Beach
101 Pasco
103 Pinellas
105 Polk
107 Putnam
109 St. Johns
111 St. Lucie
113 Santa Rosa

115 Sarasota
117 Seminole
119 Sumter
121 Suwannee
123 Taylor
125 Union
127 Volusia
129 Wakulla
131 Walton
133 Washington

GEORGIA (GA) (13)

001 Appling
003 Atkinson
005 Bacon
007 Baker
009 Baldwin
011 Banks
013 Barrow
015 Bartow
017 Ben Hill
019 Berrien
021 Bibb
023 Bleckley
025 Brantley
027 Brooks
029 Bryan
031 Bulloch
033 Burke
035 Butts
037 Calhoun
039 Camden
043 Candler
045 Carroll
047 Catoosa
049 Charlton
051 Chatham
053 Chattahoochee
055 Chattooga
057 Cherokee
059 Clarke
061 Clay
063 Clayton
065 Clinch
067 Cobb
069 Coffee
071 Colquitt
073 Columbia
075 Cook
077 Coweta
079 Crawford
081 Crisp
083 Dade
085 Dawson
087 Decatur
089 DeKalb
091 Dodge
093 Dooly
095 Dougherty
097 Douglas
099 Early
101 Echols
103 Effingham
105 Elbert
107 Emanuel
109 Evans
111 Fannin
113 Fayette
115 Floyd
117 Forsyth
119 Franklin
121 Fulton
123 Gilmer
125 Glascock
127 Glynn
129 Gordon
131 Grady
133 Greene
135 Gwinnett
137 Habersham
139 Hall
141 Hancock
143 Haralson
145 Harris
147 Hart
149 Heard
151 Henry
153 Houston
155 Irwin
157 Jackson
159 Jasper
161 Jeff Davis
163 Jefferson
165 Jenkins
167 Johnson
169 Jones
171 Lamar
173 Lanier
175 Laurens
177 Lee
179 Liberty
181 Lincoln
183 Long
185 Lowndes
187 Lumpkin
189 McDuffie
191 Mclntosh
193 Macon
195 Madison
197 Marion
199 Meriwether
201 Miller
205 Mitchell
207 Monroe
209 Montgomery
211 Morgan
213 Murray
215 Muscogee
217 Newton
219 Oconee
221 Oglethorpe
223 Paulding
225 Peach
227 Pickens
229 Pierce
231 Pike
233 Polk
235 Pulaski
237 Putnam
239 Quitman
241 Rabun
243 Randolph
245 Richmond
247 Rockdale
249 Schley
251 Screven
253 Seminole
255 Spalding
257 Stephens
259 Stewart
261 Sumter
263 Talbot
265 Taliaferro
267 Tattnall
269 Taylor
271 Telfair
273 Terrell
275 Thomas
277 Tift
279 Toombs
281 Towns
283 Treutlen
285 Troup
287 Turner
289 Twiggs
291 Union
293 Upson
295 Walker
297 Walton
299 Ware
301 Warren
303 Washington
305 Wayne
307 Webster
309 Wheeler
311 White
313 Whitfield
315 Wilcox
317 Wilkes
319 Wilkinson
321 Worth

HAWAII (HI) (15)

001 Hawaii
003 Honolulu
005 Kalawao
007 Kauai
009 Maui

IDAHO (ID) (16)

001 Ada
003 Adams
005 Bannock
007 Bear Lake
009 Benewah
011 Bingham
013 Bane
015 Boise
017 Bonner
019 Bonneville
021 Boundary
023 Butte
025 Camas
027 Canyon
029 Caribou
031 Cassia
033 Clark
035 Clearwater
037 Custer
039 Elmore
041 Franklin
043 Fremont
045 Gem
047 Gooding
049 Idaho
051 Jefferson
053 Jerome
055 Kootenai
057 Latah
059 Lemhi
061 Lewis
063 Lincoln

065 Madison
067 Minidoka
069 Nez Perce
071 Oneida
073 Owyhee
075 Payette
077 Power
079 Shoshone
081 Teton
083 Twin Falls
085 Valley
087 Washington

ILLINOIS (IL) (17)

001 Adams
003 Alexander
005 Bond
007 Boone
009 Brown
011 Bureau
013 Calhoun
015 Carroll
017 Cass
019 Champaign
021 Christian
023 Clark
025 Clay
027 Clinton
029 Coles
031 Cook
033 Crawford
035 Cumberland
037 DeKalb
039 De Witt
041 Douglas
043 DuPage
045 Edgar
047 Edwards
049 Effingham
051 Fayette
053 Ford
055 Franklin
057 Fulton
059 Gallatin
061 Greene
063 Grundy
065 Hamilton
067 Hancock
069 Hardin
071 Henderson
073 Henry
075 Iroquois
077 Jackson
079 Jasper
081 Jefferson
083 Jersey
085 Jo Daviess
087 Johnson
089 Kane
091 Kankakee
093 Kendall
095 Knox
097 Lake
099 La Salle
101 Lawrence
103 Lee
105 Livingston
107 Logan
109 McDonough
111 McHenry
113 McLean
115 Macon
117 Macoupin
119 Madison
121 Marion
123 Marshall
125 Mason
127 Massac
129 Menard
131 Mercer
133 Monroe
135 Montgomery
137 Morgan
139 Moultrie
141 Ogle
143 Peoria
145 Perry
147 Piatt
149 Pike
151 Pope
153 Pulaski
155 Putnam
157 Randolph
159 Richland
161 Rock Island
163 St. Clair
165 Saline
167 Sangamon
169 Schuyler
171 Scott
173 Shelby
175 Stark
177 Stephenson
179 Tazewell
181 Union
183 Vermilion
185 Wabash
187 Warren
189 Washington
191 Wayne
193 White
195 Whiteside
197 Will
199 Williamson
201 Winnebago
203 Woodford

INDIANA (IN) (18)

001 Adams
003 Allen
005 Bartholomew
007 Benton
009 Blackford
011 Boone
013 Brown
015 Carroll
017 Cass
019 Clark
021 Clay
023 Clinton
025 Crawford
027 Daviess
029 Dearborn
031 Decatur
033 De Kalb
035 Delaware
037 Dubois
039 Elkhart
041 Fayette
043 Floyd
045 Fountain
047 Franklin
049 Fulton
051 Gibson
053 Grant
055 Greene
057 Hamilton
059 Hancock
061 Harrison
063 Hendricks
065 Henry
067 Howard
069 Huntington
071 Jackson
073 Jasper
075 Jay
077 Jefferson
079 Jennings
081 Johnson
083 Knox
085 Kosciusko
087 Lagrange
089 Lake
091 La Porte
093 Lawrence
095 Madison
097 Marion
099 Marshall
101 Martin
103 Miami
105 Monroe
107 Montgomery
109 Morgan
111 Newton
113 Noble
115 Ohio
117 Orange
119 Owen
121 Parke
123 Perry
125 Pike
127 Porter
129 Posey
131 Pulaski
133 Putnam
135 Randolph
137 Ripley
139 Rush
141 St. Joseph
143 Scott
145 Shelby
147 Spencer
149 Starke
151 Steuben
153 Sullivan
155 Switzerland
157 Tippecanoe
159 Tipton
161 Union
163 Vanderburgh
165 VermilIon
167 Vigo
169 Wabash
171 Warren
173 Warrick
175 Washington
177 Wayne
179 Wells
181 White
183 Whitley

IOWA (IA) (19)

001 Adair
003 Adams
005 Allamakee
007 Appanoose
009 Audubon
011 Benton
013 Black Hawk
015 Boone
017 Bremer
019 Buchanan
021 Buena Vista
023 Butler
025 Calhoun
027 Carroll
029 Cass
031 Cedar
033 Cerro Gordo
035 Cherokee
037 Chickasaw
039 Clarke
041 Clay
043 Clayton
045 Clinton
047 Crawford
049 Dallas
051 Davis
053 Decatur
055 Delaware
057 Des Moines
059 Dickinson
061 Dubuque
063 Emmet
065 Fayette
067 Floyd
069 Franklin
071 Fremont
073 Greene
075 Grundy
077 Guthrie
079 Hamilton
081 Hancock
083 Hardin
085 Harrison
087 Henry
089 Howard
091 Humboldt
093 Ida
095 Iowa
097 Jackson
099 Jasper
101 Jefferson
103 Johnson
105 Jones
107 Keokuk
109 Kossuth
111 Lee
113 Linn
115 Louisa
117 Lucas
119 Lyon
121 Madison
123 Mahaska
125 Marion
127 Marshall
129 Mills
131 Mitchell
133 Monona
135 Monroe
137 Montgomery
139 Muscatine
141 O'Brien
143 Osceola
145 Page
147 Palo Alto
149 Plymouth
151 Pocahontas
153 Polk
155 Pottawattamie
157 Poweshiek
159 Ringgold
161 Sac
163 Scott
165 Shelby
167 Sioux
169 Story
171 Tama
173 Taylor
175 Union
177 Van Buren
179 Wapello
181 Warren
183 Washington
185 Wayne
187 Webster
189 Winnebago
191 Winneshiek
193 Woodbury
195 Worth
197 Wright

KANSAS (KS) (20)

001 Allen
003 Anderson
005 Atchison
007 Barber
009 Barton
011 Bourbon
013 Brown
015 Butler
017 Chase
019 Chautauqua
021 Cherokee
023 Cheyenne
025 Clark
027 Clay
029 Cloud
031 Coffey
033 Comanche
035 Cowley
037 Crawford
039 Decatur
041 Dickinson
043 Doniphan
045 Douglas
047 Edwards
049 Elk
051 Ellis
053 Ellsworth
055 Finney
057 Ford
059 Franklin
061 Geary
063 Gove
065 Graham
067 Grant
069 Gray
071 Greeley
073 Greenwood
075 Hamilton
077 Harper
079 Harvey
081 Haskell
083 Hodgeman
085 Jackson
087 Jefferson
089 Jewell
091 Johnson
093 Kearny
095 Kingman
097 Kiowa
099 Labette
101 Lane
103 Leavenworth
105 Lincoln
107 Linn
109 Logan
111 Lyon
113 McPherson
115 Marion
117 Marshall
119 Meade
121 Miami
123 Mitchell
125 Montgomery
127 Morris
129 Morton
131 Nemaha
133 Neosho
135 Ness
137 Norton
139 Osage
141 Osborne
143 Ottawa
145 Pawnee
147 Phillips
149 Pottawatomie
151 Pratt
153 Rawlins
155 Reno
157 Republic
159 Rice
161 Riley
163 Rooks
165 Rush
167 Russell
169 Saline
171 Scott
173 Sedgwick
175 Seward
177 Shawnee
179 Sheridan
181 Sherman
183 Smith
185 Stafford
187 Stanton
189 Stevens
191 Sumner
193 Thomas
195 Trego
197 Wabaunsee
199 Wallace
201 Washington
203 Wichita
205 Wilson
207 Woodson
209 Wyandotte

KENTUCKY (KY) (21)

001 Adair
003 Allen
005 Anderson

007 Ballard
009 Barren
011 Bath
013 Bell
015 Boone
017 Bourbon
019 Boyd
021 Boyle
023 Bracken
025 Breathitt
027 Breckinridge
029 Bullitt
031 Butler
033 Caldwell
035 Calloway
037 Campoell
039 Carlisle
041 Carroll
043 Carter
045 Casey
047 Christian
049 Clark
051 Clay
053 Clinton
055 Crittenden
057 Cumberland
059 Daviess
061 Edmonson
063 Elliott
065 Estill
067 Fayette
069 Fleming
071 Floyd
073 Franklin
075 Fulton
077 Gallatin
079 Garrard
081 Grant
083 Graves
085 Grayson
087 Green
089 Greenup
091 Hancock
093 Hardin
095 Harlan
097 Harrison
099 Hart
101 Henderson
103 Henry
105 Hickman
107 Hopkins
109 Jackson
111 Jefferson
113 Jessamine
115 Johnson
117 Kenton
119 Knott
121 Knox
123 Larue
125 Laurel
127 Lawrence
129 Lee
131 Leslie
133 Letcher
135 Lewis
137 Lincoln
139 Livingston
141 Logan
143 Lyon
145 McCracken
147 McCreary
149 McLean
151 Madison
153 Magoffin
155 Marion
157 Marshall
159 Martin
161 Mason
163 Meade
165 Menifee
167 Mercer
169 Metcalfe
171 Monroe
173 Montgomery
175 Morgan
177 Muhlenberg
179 Nelson
181 Nicholas
183 Ohio
185 Oldham
187 Owen
189 Owsley
191 Pendleton
193 Perry
195 Pike
197 Powell
199 Pulaski
201 Robertson
203 Rockcastle
205 Rowan
207 Russell
209 Scott
211 Shelby
213 Simpson
215 Spencer
217 Taylor
219 Todd
221 Trigg
223 Trimble
225 Union
227 Warren
229 Washington
231 Wayne
233 Webster
235 Whitley
237 Wolfe
239 Woodford

LOUISIANA (LA) (22)

001 Acadia
003 Allen
005 Ascension
007 Assumption
009 Avoyelles
011 Beauregard
013 Bienville
015 Bossier
017 Caddo
019 Calcasieu
021 Caldwell
023 Cameron
025 Catahoula
025 Catahoula
029 Concordia
031 De Soto
033 E. Baton Rouge
035 E. Carroll
037 E. Feliciana
039 Evangeline
041 Franklin
043 Grant
045 Iberia
047 Iberville
049 Jackson
051 Jefferson
053 Jefferson Davis
055 Lafayette
057 Lafourche
059 La Salle
061 Lincoln
063 Livingston
065 Madison
071 Orleans
073 Ouachita
075 Plaquemines
077 Pointe Coupee
079 Rapides
081 Red River
083 Richland
085 Sabine
087 St. Bernard
089 St. Charles
091 St. Helena
093 St. James
095 St.John Baptist
097 St. Landry
099 St. Martin
101 St. Mary
103 St. Tammany
105 Tangipahoa
107 Tensas
109 Terrebonne
111 Union
113 Vermilion
115 Vernon
117 Washington
119 Webster
121 W. Baton Rouge
123 W. Carroll
125 W. Feliciana
127 Winn
167 Wilkin
169 Winona

MAINE (ME) (23)

001 Androscoggin
003 Aroostook
005 Cumberland
007 Franklin
009 Hancock
011 Kennebec
013 Knox
015 Lincoln
017 Oxford
019 Penobscot
021 Piscataquis
023 Sagadahoc
025 Somerset
027 Waldo
029 Washington
031 York

MARYLAND (MD) (24)

001 Allegany
003 Anne Arundel
005 Baltimore
009 Calvert

011 Caroline
013 Carroll
015 Cecil
017 Charles
019 Dorchester
021 Frederick
023 Garrett
025 Harford
027 Howard
029 Kent
031 Montgomery
033 Prince George's
035 Queen Anne's
037 St. Mary's
039 Somerset
041 Talbot
043 Washington
045 Wicomico
047 Worcester
510 Baltimore (city)

MASSACHUSETTS (MA) (25)

001 Barnstable
003 Berkshire
005 Bristol
007 Dukes
009 Essex
011 Franklin
013 Hampden
015 Hampshire
017 Middlesex
019 Nantucket
021 Norfolk
023 Plymouth
025 Suffolk
027 Worcester

MICHIGAN (MI) (26)

001 Alcona
003 Alger
005 Allegan
007 Alpena
009 Antrim
011 Arenac
013 Baraga
015 Barry
017 Bay
019 Benzie
021 Berrien
023 Branch
025 Calhoun
027 Cass
029 Charlevoix
031 Cheboygan
033 Chippewa
035 Clare
037 Clinton
039 Crawford
041 Delta
043 Dickinson
045 Eaton
047 Emmet
049 Genesee
051 Gladwin
053 Gogebic
055 Grand Traverse
057 Gratiot
059 Hillsdale
061 Houghton
063 Huron
065 Ingham
067 lonia
069 losco
071 Iron
073 IsabelIa
075 Jackson
077 Kalamazoo
079 Kalkaska
081 Kent
083 Keweenaw
085 Lake
087 Lapeer
089 Leelanau
091 Lenawee
093 Livingston
095 Luce
097 Mackinac
099 Macomb
101 Manistee
103 Marquette
105 Mason
107 Mecosta
109 Menominee
111 Midland
113 Missaukee
115 Monroe
117 Montcalm
119 Montmorency
121 Muskegon
123 Newaygo
125 Oakland
127 Oceana
129 Ogemaw
131 Ontonagon
133 Osceola
135 Oscoda
137 Otsego
139 Ottawa
141 Presque Isle
143 Roscommon
145 Saginaw
147 St. Clair
149 St. Joseph
151 Sanilac
153 Schoolcraft
155 Shiawassee
157 Tuscola
159 Van Buren
161 Washtenaw
163 Wayne
165 Wexford

MINNESOTA (MN) (27)

001 Aitkin
003 Anoka
005 Becker
007 Beltrami
009 Benton
011 Big Stone
013 Blue Earth
015 Brown
017 Carlton
019 Carver
021 Cass
023 Chippewa
025 Chisago
027 Clay
029 Clearwater
031 Cook
033 Cottonwood
035 Crow Wing
037 Dakota
039 Dodge
041 Douglas
043 Faribault
045 Fillmore
047 Freeborn
049 Goodhue
051 Grant
053 Hennepin
055 Houston
057 Hubbard
059 Isanti
061 Itasca
063 Jackson
065 Kanabec
067 Kandiyohi
069 Kittson
071 Koochiching
073 Lac qui Pare
075 Lake
077 Lake of the Wood
079 Le Sueur
081 Lincoln
083 Lyon
085 McLeod
087 Mahnomen
089 Marshall
091 Martin
093 Meeker
095 Mille Lacs
097 Morrison
099 Mower
101 Murray
103 Nicollet
105 Nobles
107 Norman
109 Olmsted
111 Otter Tail
113 Pennington
115 Pine
117 Pipestone
119 Polk
121 Pope
123 Ramsey
125 Red Lake
127 Redwood
129 Renville
131 Rice
133 Rock
135 Roseau
137 St. Louis
139 Scott
141 Sherburne
143 Sibley
145 Stearns
147 Steele
149 Stevens
151 Swift
153 Todd
155 Traverse
157 Wabasha
159 Wadena
161 Waseca
163 Washington
165 Watonwan

167 Wilkin
169 Winona
171 Wright
173 Yellow Medicine

MISSISSIPPI (MS) (28)

001 Adams
003 Alcorn
005 Amite
007 Attala
009 Benton
011 Bolivar
013 Calhoun
015 Carroll
017 Chickasaw
019 Choctaw
021 Claiborne
023 Clarke
025 Clay
027 Coahoma
029 Copiah
031 Covington
033 DeSoto
035 Forrest
037 Franklin
039 George
041 Greene
043 Grenada
045 Hancock
047 Harrison
049 Hinds
051 Holmes
053 Humphreys
055 Issaquena
057 ltawamba
059 Jackson
061 Jasper
063 Jefferson
065 Jefferson Davis
067 Jones
069 Kemper
071 Lafayette
073 Lamar
075 Lauderdale
077 Lawrence
079 Leake
081 Lee
083 Leflore
085 Lincoln
087 Lowndes
089 Madison
091 Marion
093 Marshall
095 Monroe
097 Montgomery
099 Neshoba
101 Newton
103 Noxubee
105 Oktibbeha
107 Panola
109 Pearl River
111 Perry
113 Pike
115 Pontotoc
117 Prentiss
119 Quitman
121 Rankin
123 Scott
125 Sharkey
127 Simpson
129 Smith
131 Stone
133 Sunflower
135 Tallahatchie
137 Tate
139 Tippah
141 Tishomingo
143 Tunica
145 Union
147 Walthall
149 Warren
151 Washington
153 Wayne
155 Webster
157 Wilkinson
159 Winston
161 Yalobusha
163 Yazoo

MISSOURI (MO) (29)

001 Adair
003 Andrew
005 Atchison
007 Audrain
009 Barry
011 Barton
013 Bates
015 Benton
017 Bollinger
019 Boone
021 Buchanan
023 Butler
025 Caldwell
027 Callaway
029 Camden
031 Cape Girardeau
033 Carroll
035 Carter
037 Cass
039 Cedar
041 Chariton
043 Christian
045 Clark
047 Clay
049 Clinton
051 Cole
053 Cooper
055 Crawford
057 Dade
059 Dallas
061 Daviess
063 DeKalb
065 Dent
067 Douglas
069 Dunklin
071 Franklin
073 Gasconade
075 Gentry
077 Greene
079 Grundy
081 Harrison
083 Henry
085 Hickory
087 Holt
089 Howard
091 Howell
093 Iron
095 Jackson
097 Jasper
099 Jefferson
101 Johnson
103 Knox
105 Laclede
107 Lafayette
109 Lawrence
111 Lewis
113 Lincoln
115 Linn
117 Livingston
119 McDonald
121 Macon
123 Madison
125 Maries
127 Marion
129 Mercer
131 Miller
133 Mississippi
135 Moniteau
137 Monroe
139 Montgomery
141 Morgan
143 New Madrid
145 Newton
147 Nodaway
149 Oregon
151 Osage
153 Ozark
155 Pemiscot
157 Perry
159 Pettis
161 Phelps
163 Pike
165 Platte
167 Polk
169 Pulaski
171 Putnam
173 RaIls
175 Randolph
177 Ray
179 Reynolds
181 Ripley
183 St. Charles
185 St. Clair
186 Ste. Genevieve
187 St. Francois
189 St. Louis
195 Saline
197 Schuyler
199 Scotland
201 Scott
203 Shannon
205 Shelby
207 Stoddard
209 Stone
211 Sullivan
213 Taney
215 Texas
217 Vernon
219 Warren
221 Washington
223 Wayne
225 Webster
227 Worth
229 Wright
510 St. Louis(city)

MONTANA (MT) (30)

001 Beaverhead
003 Big Horn
005 Blaine
007 Broadwater
009 Carbon
011 Carter
013 Cascade
015 Chouteau
017 Custer
019 Daniels
021 Dawson
023 Deer Lodge
025 Fallon
027 Fergus
029 Flathead
031 Gallatin
033 Garfield Park
035 Glacier
037 Golden Valley
039 Granite
041 Hill
043 Jefferson
045 Judith Basin
047 Lake
049 Lewis & Clark
051 Liberty
053 Lincoln
055 McCone
057 Madison
059 Meagher
061 Mineral
063 Missoula
065 Musselshell
067 Park
069 Petroleum
071 Phillips
073 Pondera
075 Powder River
077 Powell
079 Prairie
081 Ravalli
083 Richland
085 Roosevelt
087 Rosebud
089 Sanders
091 Sheridan
093 Silver Bow
095 Stillwater
097 Sweet Grass
099 Teton
101 Toole
103 Treasure
105 Valley
107 Wheatland
109 Wibaux
111 Yellowstone
113 Yellowstone National Park

NEBRASKA (NE) (31)

001 Adams
003 Antelope
005 Arthur
007 Banner
009 Blaine
011 Boone
013 Box Butte
015 Boyd
017 Brown
019 Buffalo
021 Burt
023 Butler
025 Cass
027 Cedar
029 Chase
031 Cherry
033 Cheyenne
035 Clay
037 Colfax
039 Cuming
041 Custer
043 Dakota
045 Dawes
047 Dawson
049 Deuel
051 Dixon
053 Dodge
055 Douglas
057 Dundy
059 Fillmore
061 Franklin
063 Frontier
065 Furnas
067 Gage
069 Garden
071 Garfield
073 Gosper
075 Grant
077 Greeley
079 Hall
081 Hamilton
083 Harlan
085 Hayes
087 Hitchcock
089 Holt
091 Hooker
093 Howard
095 Jefferson
097 Johnson
099 Kearney
101 Keith
103 Keya Paha
105 Kimball
107 Knox
109 Lancaster
111 Lincoln
113 Logan
115 Loup
117 McPherson
119 Madison
121 Merrick
123 Morrill
125 Nance
127 Nemaha
129 Nuckolls
131 Otoe
133 Pawnee
135 Perkins
137 Phelps
139 Pierce
141 Platte
143 Polk
145 Red Willow
147 Richardson
149 Rock
151 Saline
153 Sarpy
155 Saunders
157 Scotts Bluff
159 Seward
161 Sheridan
163 Sherman
165 Sioux
167 Stanton
169 Thayer
171 Thomas
173 Thurston
175 Valley
177 Washington
179 Wayne
181 Webster
183 Wheeler
185 York

NEVADA (NV) (32)

001 Churchill
003 Clark
005 Douglas
007 Elko
009 Esmeralda
011 Eureka
013 Humboldt
015 Lander
017 Lincoln
019 Lyon
021 Mineral
023 Nye
027 Pershing
029 Storey
031 Washoe
033 White Pine
510 Carson City

NEW HAMPSHIRE (NH) (33)

001 Belknap
003 Carroll
005 Cheshire
007 Coos
009 Grafton
011 Hillsborough
013 Merrimack
015 Rockingham
017 Strafford
019 Sullivan

NEW JERSEY (NJ) (34)

001 Atlantic
003 Bergen
005 Burlington
007 Camden
009 Cape May
011 Cumberland
013 Essex
015 Gloucester
017 Hudson
019 Hunterdon
021 Mercer
023 Middlesex
025 Monmouth
027 Morris
029 Ocean
031 Passaic
033 Salem
035 Somerset
037 Sussex
039 Union
041 Warren

NEW MEXICO (NM) (35)

001 Bernalillo
003 Catron
005 Chaves
006 Cibola
007 Colfax
009 Curry
011 DeBaca
013 Dona Ana
015 Eddy
017 Grant
019 Guadalupe
021 Harding
023 Hidalgo
025 Lea
027 Lincoln
028 Los Alamos
029 Luna
031 McKinley
033 Mora
035 Otero
037 Quay
039 Rio Arriba
041 Roosevelt
043 Sandoval
045 San Juan
047 San Miguel
049 Santa Fe
051 Sierra
053 Socorro
055 Taos
057 Torrance
059 Union
061 Valencia

NEW YORK (NY) (36)

001 Albany
003 Allegany
005 Bronx
007 Broome
009 Cattarnugus
011 Cayuga
013 Chautauqua
015 Chemung
017 Chenango
019 Clinton
021 Columbia
023 Cortland
025 Delaware
027 Dutchess
029 Erie
031 Essex
033 Franklin
035 Fulton
037 Genesee
039 Greene
041 Hamilton
043 Herkimer
045 Jefferson
047 Kings
049 Lewis
051 Livingston
053 Madison
055 Monroe
057 Montgomery
059 Nassau
061 New York
063 Niagara
065 Oneida
067 Onondaga
069 Ontario
071 Orange
073 Orleans
075 Oswego
077 Otsego
079 Putnam
081 Queens
083 Renselaer
085 Richmond
087 Rockland
089 St. Lawrence
091 Saratoga
093 Schenectady
095 Schoharie
097 Schuyler
099 Seneca
101 Steuben
103 Suffolk
105 Sullivan
107 Tioga
109 Tompkins
111 Ulster
113 Warren
115 Washington
117 Wayne
119 Westchester
121 Wyoming
123 Yates

NORTH CAROLINA (NC) (37)

001 Alamance
003 Alexander
005 Alleghany
007 Anson
009 Ashe
011 Avery
013 Beaufort
015 Bertie
017 Bladen
019 Brunswick
021 Buncombe
023 Burke
025 Cabarrus
027 Caldwell
029 Camden
031 Carteret
033 Caswell
035 Catawba
037 Chatham
039 Cherokee
041 Chowan
043 Clay
045 Cleveland
047 Columbus
049 Craven
051 Cumberland
053 Currituck
055 Dare
057 Davidson
059 Davie
061 Duplin
063 Durham
065 Edgecombe
067 Forsyth
069 Franklin
071 Gaston
073 Gates
075 Graham
077 Granville
079 Greene
081 Guilford
083 Halifax
085 Harnett
087 Haywood
089 Henderson
091 Hertford
093 Hoke
095 Hyde
097 Iredell
099 Jackson
101 Johnston
103 Jones
105 Lee
107 Lenoir
109 Lincoln
111 McDowell
113 Macon
115 Madison
117 Martin
119 Mecklenburg
121 Mitchell
123 Montgomery
125 Moore
127 Nash
129 New Hanover
131 Northampton
133 Onslow
135 Orange
137 Pamlico
139 Pasquotank
141 Pender
143 Perquimans
145 Person
147 Pitt
149 Polk
151 Randolph
153 Richmond
155 Robeson
157 Rockingham
159 Rowan
161 Rutherford
163 Sampson
165 Scotland
167 Staniy
169 Stokes
171 Surry
173 Swain
175 Transylvania
177 Tyrrell
179 Union
181 Vance
183 Wake
185 Warren
187 Washington
189 Watauga
191 Wayne
193 Wilkes
195 Wilson
197 Yadkin
199 Yancey

NORTH DAKOTA (ND) (38)

001 Adams
003 Barnes
005 Benson

007 Billings
009 Bottineau
011 Bowman
013 Burke
015 Burleigh
017 Cass
019 Cavalier
021 Dickey
023 Divide
025 Dunn
027 Eddy
029 Emmons
031 Foster
033 Golden Valley
035 Grand Forks
037 Grant
039 Griggs
041 Hettinger
043 Kidder
045 LaMoure
047 Logan
049 McHenry
051 Mclntosh
053 McKenzie
055 McLean
057 Mercer
059 Morton
061 Mountrail
063 Nelson
065 Oliver
067 Pembina
069 Pierce
071 Ramsey
073 Ransom
075 Renville
077 Richland
079 Rolette
081 Sargent
083 Sheridan
085 Sioux
087 Slope
089 Stark
091 Steele
093 Stutsman
095 Towner
097 Traill
099 Walsh
101 Ward
103 Wells
105 Williams

OHIO (OH) (39)

001 Adams
003 Allen
005 Ashland
007 Ashtabula
009 Athens
011 Auglaize
013 Belmont
015 Brown
017 Butler
019 Carroll
021 Champaign
023 Clark
025 Clermont
027 Clinton
029 Columbiana
031 Coshocton
033 Crawford
035 Cuyahoga
037 Darke
039 Defiance
041 Delaware
043 Erie
045 Fairfield
047 Fayette
049 Franklin
051 Fulton
053 Gallia
055 Geauga
057 Greene
059 Guernsey
061 Hamilton
063 Hancock
065 Hardin
067 Harrison
069 Henry
071 Highland
073 Hocking
075 Holmes
077 Huron
079 Jackson
081 Jefferson
083 Knox
085 Lake
087 Lawrence
089 Licking
091 Logan
093 Lorain
095 Lucas
097 Madison
099 Mahoning
101 Marion
103 Medina
105 Meigs
107 Mercer
109 Miami
111 Monroe
113 Montgomery
115 Morgan
117 Morrow
119 Muskingum
121 Noble
123 Ottawa
125 Paulding
127 Perry
129 Pickaway
131 Pike
133 Portage
135 Preble
137 Putnam
139 Richland
141 Ross
143 Sandusky
145 Scioto
147 Seneca
149 Shelby
151 Stark
153 Summit
155 Trumbull
157 Tuscarawas
159 Union
161 Van Wert
163 Vinton
165 Warren
167 Washington
169 Wayne
171 Williams
173 Wood
175 Wyandot

OKLAHOMA (OK) (40)

001 Adair
003 Alfalfa
005 Atoka
007 Beaver
009 Beckham
011 Blaine
013 Bryan
015 Caddo
017 Canadian
019 Carter
021 Cherokee
023 Choctaw
025 Cimarron
027 Cleveland
029 Coal
031 Comanche
033 Cotton
035 Craig
037 Creek
039 Custer
041 Delaware
043 Dewey
045 Ellis
047 Garfield
049 Garvin
051 Grady
053 Grant
055 Greer
057 Harmon
059 Harper
061 Haskell
063 Hughes
065 Jackson
067 Jefferson
069 Johnston
071 Kay
073 Kingfisher
075 Kiowa
077 Latimer
079 Le Flore
081 Lincoln
083 Logan
085 Love
087 McClain
089 McCurtain
091 McIntosh
093 Major
095 Marshall
097 Mayes
099 Murray
101 Muskogee
103 Noble
105 Nowata
107 Okfuskee
109 Oklahoma
111 Okmulgee
113 Osage
115 Ottawa
117 Pawnee
119 Payne
121 Pittsburg
123 Pontotoc
125 Pottawatomie
127 Pushmataha
129 Roger Mills
131 Rogers
133 Seminole
135 Sequoyah
137 Stephens
139 Texas
141 Tillman

143 Tulsa
145 Wagoner
147 Washington
149 Washita
151 Woods
153 Woodward

OREGON (OR) (41)

001 Baker
003 Benton
005 Clackamas
007 Clatsop
009 Columbia
011 Coos
013 Crook
015 Curry
017 Deschutes
019 Douglas
021 Gilliam
023 Grant
025 Harney
027 Hood River
029 Jackson
031 Jefferson
033 Josephine
035 Klamath
037 Lake
039 Lane
041 Lincoln
043 Linn
045 Malheur
047 Marion
049 Morrow
051 Multnomah
053 Polk
055 Sherman
057 Tillamook
059 Umatilla
061 Union
063 Wallowa
065 Wasco
067 Washington
069 Wheeler
071 Yamhill

PENNSYLVANIA (PA) (42)

001 Adams
003 Allegheny
005 Armstrong
007 Beaver
009 Bedford
011 Berks
013 Blair
015 Bradford
017 Bucks
019 Butler
021 Cambria
023 Cameron
025 Carbon
027 Centre
029 Chester
031 Clarion
033 Clearfield
035 Clinton
037 Columbia
039 Crawford
041 Cumberland
043 Dauphin
045 Delaware
047 Elk
049 Erie
051 Fayette
053 Forest
055 Franklin
057 Fulton
059 Greene
061 Huntingdon
063 Indiana
065 Jefferson
067 Juniata
069 Lackawanna
071 Lancaster
073 Lawrence
075 Lebanon
077 Lehigh
079 Luzerne
081 Lycoming
083 McKean
085 Mercer
087 Mifflin
089 Monroe
091 Montgomery
093 Montour
095 Northampton
097 Northumberland
099 Perry
101 Philadelphia
103 Pike
105 Potter
107 Schuylkill
109 Snyder
111 Somerset
113 Sullivan
115 Susquehanna
117 Tioga
119 Union
121 Venango
123 Warren
125 Washington
127 Wayne
129 Westmornland
131 Wyoming
133 York

RHODE ISLAND (RI) (44)

001 Bristol
003 Kent
005 Newport
007 Providence
009 Washington

SOUTH CAROLINA (SC) (45)

001 Abbeville
003 Aiken
005 Allendale
007 Anderson
009 Bamberg
011 Barnwell
013 Beaufort
015 Berkeley
017 Calhoun
019 Charleston
021 Cherokee
023 Chester
025 Chesterfield
027 Clarendon
029 Colleton
031 Darlington
033 Dillon
035 Dorchester
037 Edgefield
039 Fairfield
041 Florence
043 Georgetown
045 Greenville
047 Greenwood
049 Hampton
051 Horry
053 Jasper
055 Kershaw
057 Lancaster
059 Laurens
061 Lee
063 Lexington
065 McCormick
067 Marion
069 Marlboro
071 Newberry
073 Oconee
075 Orangeburg
077 Pickens
079 Richland
081 Saluda
083 Spartanburg
085 Sumter
087 Union
089 Williamsburg
091 York

SOUTH DAKOTA (SD) (46)

003 Aurora
005 Beadle
007 Bennett
009 Bon Homme
011 Brookings
013 Brown
015 Brule
017 Buffalo
019 Butte
021 Campbell
023 Charles Mix
025 Clark
027 Clay
029 Codington
031 Corson
033 Custer
035 Davison
037 Day
039 Deuel
041 Dewey
043 Douglas
045 Edmunds
047 Fall River
049 Faulk
051 Grant
053 Gregory
055 Haakon
057 Hamlin
059 Hand
061 Hanson
063 Harding
065 Hughes
067 Hutchinson

069 Hyde
071 Jackson
073 Jerauld
075 Jones
077 Kingsbury
079 Lake
081 Lawrence
083 Lincoln
085 Lyman
087 McCook
089 McPherson
091 Marshall
093 Meade
095 Mellette
097 Miner
099 Minnehaha
101 Moody
103 Pennington
105 Perkins
107 Potter
109 Roberts
111 Sanborn
113 Shannon
115 Spink
117 Stanley
119 Sully
121 Todd
123 Tripp
125 Turner
127 Union
129 Walworth
135 Yankton
137 Ziebach

TENNESSEE (TN) (47)

001 Anderson
003 Bedford
005 Benton
007 Bledsoe
009 Blount
011 Bradley
013 Campbell
015 Cannon
017 Carroll
019 Carter
021 Cheatham
023 Chester
025 Claiborne
027 Clay
029 Cocke
031 Coffee
033 Crockett
035 Cumberland
037 Davidson
039 Decatur
041 DeKalb
043 Dickson
045 Dyer
047 Fayette
049 Fentress
051 Franklin
053 Gibson
055 Giles
057 Grainger
059 Greene
061 Grundy
063 Hamblen
065 Hamilton
067 Hancock
069 Hardeman
071 Hardin
073 Hawkins
075 Haywood
077 Henderson
079 Henry
081 Hickman
083 Houston
085 Humphreys
087 Jackson
089 Jefferson
091 Johnson
091 Johnson
095 Lake
097 Lauderdale
099 Lawrence
101 Lewis
103 Lincoln
105 Loudon
107 McMinn
109 McNairy
111 Macon
113 Madison
115 Marion
117 Marshall
119 Maury
121 Meigs
123 Monroe
125 Montgomery
127 Moore
129 Morgan
131 Obion
133 Overton
135 Perry
137 Pickett
139 Polk
141 Putnam
143 Rhea
145 Roane
147 Robertson
149 Rutherford
151 Scott
153 Sequatchie
155 Sevier
157 Shelby
159 Smith
161 Stewart
163 Sullivan
165 Sumner
167 Tipton
169 Trousdale
171 Unicoi
173 Union
175 Van Buren
177 Warren
179 Washington
181 Wayne
183 Weakley
185 White
187 Williamson
189 Wilson

TEXAS (TX) (48)

001 Anderson
003 Andrews
005 Angelina
007 Aransas
009 Archer
011 Armstrong
013 Atascosa
015 Austin
017 Bailey
019 Bandera
021 Bastrop
023 Baylor
025 Bee
027 Bell
029 Bexar
031 Blanco
033 Borden
035 Bosque
037 Bowie
039 Brazoria
041 Brazos
043 Brewster
045 Briscoe
047 Brooks
049 Brown
051 Burleson
053 Burnet
055 Caldwell
057 Calhoun
059 Callahan
061 Cameron
063 Camp
065 Carson
067 Cass
069 Castro
071 Chambers
073 Cherokee
075 Childress
077 Clay
079 Cochran
081 Coke
083 Coleman
085 Collin
087 Collingsworth
089 Colorado
091 Comal
093 Comanche
095 Concho
097 Cooke
099 Coryell
101 Cottle
103 Crane
105 Crockett
107 Crosby
109 Culberson
111 Dallam
113 Dallas
115 Dawson
117 Deaf Smith
119 Delta
121 Denton
123 DeWitt
125 Dickens
127 Dimmit
129 Donley
131 Duval
133 Eastland
135 Ector
137 Edwards
139 Ellis
141 El Paso
143 Erath
145 Falls
147 Fannin
149 Fayette
151 Fisher
153 Floyd
155 Foard
157 Fort Bend
159 Franklin
161 Freestone

163 Frio
165 Gaines
167 Galveston
169 Garza
171 Gillespie
173 Glasscock
175 Goliad
177 Gonzales
179 Gray
181 Grayson
183 Gregg
185 Grimes
187 Guadalupe
189 Hale
191 Hall
193 Hamilton
195 Hansford
197 Hardeman
199 Hardin
201 Harris
203 Harrison
205 Hartley
207 Haskell
209 Hays
211 Hemphill
213 Henderson
215 Hidalgo
217 Hill
219 Hockley
221 Hood
223 Hopkins
225 Houston
227 Howard
229 Hudspeth
231 Hunt
233 Hutchinson
235 Irion
237 Jack
239 Jackson
241 Jasper
243 Jeff Davis
245 Jefferson
247 Jim Hogg
249 Jim Wells
251 Johnson
253 Jones
255 Karnes
257 Kaufman
259 Kendall
261 Kenedy
263 Kent
265 Kerr
267 Kimble
269 King
271 Kinney
273 Kleberg
275 Knox
277 Lamar
279 Lamb
281 Lampasas
283 La Salle
285 Lavaca
287 Lee
289 Leon
291 Liberty
293 Limestone
295 Lipscomb
297 Live Oak
299 Llano
301 Loving
303 Lubbock
305 Lynn
307 McCulloch
309 McLennan
311 McMullen
313 Madison
315 Marion
317 Martin
319 Mason
321 Matagorda
323 Maverick
325 Medina
327 Menard
329 Midland
331 Milam
333 Mills
335 Mitchell
337 Montague
339 Montgomery
341 Moore
343 Morris
345 Motley
347 Nacogdoches
349 Navarro
351 Newton
353 Nolan
355 Nueces
357 Ochiltree
359 Oldham
361 Orange
363 Palo Pinto
365 Panola
367 Parker
369 Parmer
371 Pecos
373 Polk
375 Potter
377 Presidio
379 Rains
381 Randall
383 Reagan
385 Real
387 Red River
389 Reeves
391 Refugio
393 Roberts
395 Robertson
397 Rockwall
399 Runnels
401 Rusk
403 Sabine
405 San Augustine
407 San Jacinto
409 San Patricio
411 San Saba
413 Schleicher
415 Scurry
417 Shackelford
419 Shelby
421 Sherman
423 Smith
425 Somervell
427 Starr
429 Stephens
431 Sterling
433 Stonewall
435 Sutton
437 Swisher
439 Tarrant
441 Taylor
443 Terrell
445 Terry
447 Throckmorton
449 Titus
451 Tom Green
453 Travis
455 Trinity
457 Tyler
459 Upshur
461 Upton
463 Uvalde
465 Val Verde
467 Van Zandt
469 Victoria
471 Walker
473 Waller
475 Ward
477 Washington
479 Webb
481 Wharton
483 Wheeler
485 Wichita
487 Wilbarger
489 Willacy
491 Williamson
493 Wilson
495 Winkler
497 Wise
499 Wood
501 Yoakum
503 Young
505 Zapata
507 Zavala

UTAH (UT) (49)

001 Beaver
003 Box Elder
005 Cache
007 Carbon
009 Daggett
011 Davis
013 Duchesne
015 Emery
017 Garfield
019 Grand
021 Iron
023 Juab
025 Kane
027 Millard
029 Morgan
031 Piute
031 Piute
035 Salt Lake
037 San Juan
039 Sanpete
041 Sevier
043 Summit
045 Tooele
047 Uintah
049 Utah
051 Wasatch
053 Washington
055 Wayne
057 Weber

VERMONT (VT) (50)

001 Addison
003 Bennington
005 Caledonia
007 Chittenden
009 Essex
011 Franklin
013 Grand Isle

015 Lamoille
017 Orange
019 Orleans
021 Rutland
023 Washington
025 Windham
027 Windsor

VIRGINIA (VA) (51)

001 Accomack
003 Albemarle
005 Alleghany
007 Amelia
009 Amherst
011 Appomattox
013 Arlington
015 Augusta
017 Bath
019 Bedford
021 Bland
023 Botetourt
025 Brunswick
027 Buchanan
029 Buckingham
031 Campbell
033 Caroline
035 Carroll
036 Charles City
037 Charlotte
041 Chesterfield
043 Clarke
045 Craig
047 Culpeper
049 Cumberland
051 Dickenson
053 Dinwiddie
057 Essex
059 Fairfax
061 Fauquier
063 Floyd
065 Fluvanna
067 Franklin
069 Frederick
071 Giles
073 Gloucester
075 Goochland
077 Grayson
079 Greene
081 Greensville
083 Halifax
085 Hanover
087 Henrico
089 Henry
091 Highland
093 Isle of Wight
095 James City
097 King and Queen
099 King George
101 King William
103 Lancaster
105 Lee
107 Loudoun
109 Louisa
111 Lunenburg
113 Madison
115 Mathews
117 Mecklenburg
119 Middlesex
121 Montgomery
125 Nelson
127 New Kent
131 Northampton
133 Northumberland
135 Nottoway
137 Orange
139 Page
141 Patrick
143 Pittsylvania
145 Powhatan
147 Prince Edward
149 Prince George
153 Prince William
155 Pulaski
157 Rappahannock
159 Richmond
161 Roanoke
163 Rockbridge
165 Rockingham
167 Russell
169 Scott
171 Shenandoah
173 Smyth
175 Southampton
177 Spotsylvania
179 Stafford
181 Surry
183 Sussex
185 Tazewell
187 Warren
191 Washington
193 Westmoreland
195 Wise
197 Wythe
199 York
510 Alexandria
515 Bedford (city)
520 Bristol (city)
530 Buena Vista
540 Charlottesville
550 Chesapeake
560 Clifton Forge
570 Colonial Hts
580 Covington
590 Danville (city)
595 Emporia (city)
600 Fairfax (city)
610 Falls Church
620 Franklin (city)
630 Fredericksburg
640 Galax (city)
650 Hampton (city)
660 Harrisonburg
670 Hopewell (city)
678 Lexington
680 Lynchburg
683 Manassas (city)
685 Manassas Park
690 Martinsville
700 Newport News
710 Norfolk (city)
720 Norton (city)
730 Petersburg
735 Poquoson (city)
740 Portsmouth
750 Radford (city)
760 Richmond (city)
770 Roanoke (city)
775 Salem (city)
780 South Boston
790 Staunton (city)
800 Suffolk (city)
810 Virginia Beach
820 Waynesboro
830 Williamsburg
840 Winchester

WASHINGTON (WA) (53)

001 Adams
003 Asotin
005 Benton
007 Chelan
009 Clallam
011 Clark
013 Columbia
015 Cowlitz
017 Douglas
019 Ferry
021 Franklin
023 Garfield
025 Grant
027 Grays Harbor
029 Island
031 Jefferson
033 King
035 Kitsap
037 Kittitas
039 Klickitat
041 Lewis
043 Lincoln
045 Mason
047 Okanogan
049 Pacific
051 Pend Oreille
053 Pierce
055 San Juan
057 Skagit
059 Skamania
061 Snohomish
063 Spokane
065 Stevens
067 Thurston
069 Wahkiakum
071 Walla Walla
073 Whatcom
075 Whitman
077 Yakima

WEST VIRGINIA (WV) (54)

001 Barbour
003 Berkeley
005 Boone
007 Braxton
009 Brooke
011 Cabell
013 Calhoun
015 Clay
017 Doddridge
019 Fayette
021 Gilmer
023 Grant

025 Greenbrier
027 Hampshire
029 Hancock
031 Hardy
033 Harrison
035 Jackson
037 Jefferson
039 Kanawha
041 Lewis
043 Lincoln
045 Logan
047 McDowell
049 Marion
051 Marshall
053 Mason
055 Mercer
057 Mineral
059 Mingo
061 Monongalia
063 Monroe
065 Morgan
067 Nicholas
069 Ohio
071 Pendleton
073 Pleasants
075 Pocahontas
077 Preston
079 Putnam
081 Raleigh
083 Randolph
085 Ritchie
087 Roane
089 Summers
091 Taylor
093 Tucker
095 Tyler
097 Upshur
099 Wayne
101 Webster
103 Wetzel
105 Wirt
107 Wood
109 Wyoming

WISCONSIN (WI) (55)

001 Adams
003 Ashland
005 Barron
007 Bayfield
009 Brown
011 Buffalo
013 Burnett
015 Calumet
017 Chippewa
019 Clark
021 Columbia
023 Crawford
025 Dane
027 Dodge
029 Door
031 Douglas
033 Dunn
035 Eau Claire
037 Florence
039 Fond du Lac
041 Forest
043 Grant
045 Green
047 Green Lake
049 Iowa
051 Iron
053 Jackson
055 Jefferson
057 Juneau
059 Kenosha
061 Kewaunee
063 La Crosse
065 Lafayette
067 Langlade
069 Lincoln
071 Manitowoc
073 Marathon
075 Marinette
077 Marquette
078 Menominee
079 Milwaukee
081 Monroe
083 Oconto
085 Oneida
087 Outagamie
089 Ozaukee
091 Pepin
093 Pierce
095 Polk
097 Portage
099 Price
101 Racine
103 Richland
105 Rock
107 Rusk
109 St. Croix
111 Sauk
113 Sawyer
115 Shawano
117 Sheboygan
119 Taylor
121 Trempealeau
123 Vernon
125 Vilas
127 Walworth
129 Washburn
131 Washington
133 Waukesha
135 Waupaca
137 Waushara
139 Winnebago
141 Wood

WYOMING (WY) (56)

001 Albany
003 Big Horn
005 Campbell
007 Carbon
009 Converse
011 Crook
013 Fremont
015 Goshen
017 Hot Springs
019 Johnson
021 Laramie
023 Lincoln
025 Natrona
027 Niobrara
029 Park
031 Platte
033 Sheridan
035 Sublette
037 Sweetwater
039 Teton
041 Uinta
043 Washakie
045 Weston

AMERICAN SAMOA (AS) (60)

010 Eastern District
020 Manu'a District
030 Rose Island
040 Swains Island
050 Western District

GUAM (GU) (66)

010 Guam

NORTHERN MARIANA ISLANDS (MP) (69)

085 Northern Islands
100 Rota
110 Saipan
120 Tinian

PALAU (PW) (70)

002 Aimeliik
004 Airai
010 Angaur
050 Hatoboheit
100 Kayangel
150 Koror
212 Melekeok
214 Ngaraard
218 Ngarchelong
222 Ngardmau
224 Ngatpang
226 Ngchesar
227 Ngernmlengui
228 Ngiwal
350 Peleliu
370 Sonsorol

PUERTO RICO (PR) (72)

001 Adjuntas
003 Aguada
005 Aguadilla
007 Aguas Buenas
009 Aibonito
011 Anasco
013 Arecibo
015 Arroyo
017 Barceloneta
019 Barranquitas
021 Bayamo'n
023 Cabo Rojo
025 Caguas
027 Camuy
029 Canovanas
031 Carolina
033 Catano
035 Cayey
037 Ceiba
039 Ciales

041 Cidra
043 Coamo
045 Comerio
047 Corozal
049 Culebra
051 Dorado
053 Fajardo
054 Florida
055 Guanica
057 Guayama
059 Guayanilla
061 Guaynabo
063 Gurabo
065 Hatillo
067 Hormigueros
069 Humacao
071 lsabela
073 Jayuya
075 Juana Diaz
077 Juncos
079 Lajas
081 Lares
083 Las Marias
085 Las Piedras
087 Loiza
089 Luquillo
091 Manati
093 Maricao
095 Maunabo
097 Mayaguez
099 Moca
101 Morovis
103 Naguabo
105 Naranjito
107 Orocovis
109 Patillas
111 Penuelas
113 Ponce
115 Quebradillas
117 Rincon
119 Rio Grande
121 Sabana Grande
123 Salinas
125 San German
127 San Juan
129 San Lorenzo
131 San Sebastian
133 Santa Isabel
135 Toa Alta
137 Toa Baja
139 Trujillo Alto
141 Utuado
143 Vega Alta
145 Vega Baja
147 Vieques
149 Villalba
151 Yabucoa
153 Yauco

U.S. MINOR OUTLYING ISLANDS (UM) (74)

050 Baker Island
100 Howland Island
150 Jarvis Island
200 Johnston Island
250 Kingman Reef
300 Midway Islands
350 Navassa Island
400 Palmyra Atoll
450 Wake Island

VIRGIN ISLANDS OF THE UNITED STATES (VI) (78)

010 St. Croix
020 St. John
030 St. Thomas

FEDERATED STATES OF MICRONESIA (FM) (64)

002 Chuuk
005 Kosrae
040 Pohnpeit
060 Yap

MARSHALL ISLANDS (MH) (68)

007 Ailinginae
010 Ailinglaplap
030 Ailuk
040 Arno
050 Aur
060 Bikar
070 Bikini
073 Bokak
080 Ebon
090 Enewetak
100 Erikub
110 Jabat
120 Jaluit
130 Jemo
140 Kili
150 Kwajalein
160 Lae
170 Lib
180 Likiep
190 Majuro
300 Maloelap
310 Mejit
320 Mili
330 Namorik
340 Namu
350 Rongelap
360 Rongrik
385 Toke
390 Ujae
400 Ujelang
410 Utrik
420 Wotho
430 Wotle

Appendix D: Download Procedure for E▫A▫S Software Update

DOWNLOAD PROCEDURE FOR E.A.S. SOFTWARE UPDATE

These are the instructions for loading a new version of software onto your EAS system.

Equipment:

The download diskette
An IBM PC or compatible with one available COM port (RS-232 serial port)
A standard null modem cable
(A 9-pin to 25-pin adapter, if your modem cable needs it)

Setup:

If your PC's COM port has 25 pins (top row of 12, bottom staggered row of 13), a 9-pin female to 25-pin female null modem cable is required. If you are using a computer with a 9-pin COM port (4 pins over 5), a cable with nine-pin female connectors on each end may be used. You may also purchase an adapter at any computer outlet. (If you would like to construct a cable, pinout charts are at the end of this document.)

You will also need to identify which COM port you are using. Many computers label the COM ports, and will identify which one is which (1 or 2). If you can't tell which COM port is which, refer to the section at the end of this document entitled, "Finding Your COM Port." Once you have determined which COM port you may use (COM 1 or COM 2), make a note of it. Later, you will need to tell the software loader which port to get its information from.

Procedure:

1. Connect one end of the null modem cable to the available COM port (1 or 2) on the PC. Connect the other end to the 9-pin RS-232 connector labeled "J7 CHAR. GEN" on the back of the EAS System.

2. Get a DOS prompt. If you are in Windows, you may do this by selecting "MS-DOS Prompt" in the File Manager window. From Windows 95, you would select Start, Programs, then MS-DOS Prompt.

3. Insert the supplied diskette into the diskette drive of the PC and log to that floppy drive. (To log to floppy drive A, type `a:` and hit the `ENTER` key. To log to floppy drive B, type `b:` and hit the `ENTER` key. This will give you a prompt that looks like this: `A:>` or `B:>`)

4. If you are using COM port 1, type `UPDATE 1` and hit the `ENTER` key at the prompt. If you are using COM port 2, type `UPDATE 2` and hit the `ENTER` key. The PC screen will display the text below. Take note of the version number, which is Rev. 1.0 in this illustration. The version number will change with new releases.

```
EAS Programming Utility
```

```
This utility will reprogram the EAS system with the
latest
software revision: Rev. 1.0.  This will take about 15
minutes.


Press q to quit or enter to continue
```

5. Press ENTER.
   The screen will display the following message:

```
Sending Boot Message to EAS System
Cycle power on the EAS System to start
reprogramming
```

   The PC will begin to generate a row of dots on the next line, indicating the progress of the software loading. The number of dots generated at each stage of the download will vary with your equipment.

6. To cycle the power on the EAS System, simply disconnect and reconnect the power cable at the back of the unit.

   The EAS System screen will begin to generate self-tests, as it would any other time its power is cycled. If the connection between the EAS System and the PC is successful, it will not finish the tests, but will begin receiving the new programming from the PC instead. Interruption of the self-tests is normal.

   If the connection between the EAS System and the PC was *not* complete, you will know by one of the following indications:

   The EAS System finishes the self-tests and displays the **READY** menu at this point
   The first line of dots the PC begins to generate is not a short row (as pictured on the next page), but a complete line of dots.

   If either case occurs, check both ends of the null modem cable to make sure they are firmly connected to the right ports and try the procedure again. If the connection continues to fail, you may call Burk Technology at (508) 486-0086 and ask for the technical support department.

   The PC will now erase the earlier version of EAS software and replace it with the newer one. (Don't be concerned that the program is erasing the current application. It must do that in order to make room for the new application, as well as minimize the possibility of confusion or error within the EAS System itself.)

   The PC screen will progressively display the following:

```
Beginning EAS System reprogramming
Downloading system programming utility
........
Erasing current application
Downloading new EAS application
................................................
................................................
................................................
................................................
................................................
................................................
......
Downloading event table
....
Downloading location table
................................................
................................................
.......................
Downloading the checksum
.
EAS system programming complete
Cycle power on the EAS System to enable changes

A:\>
```

When the DOS prompt appears, the EAS System will finish the self tests it began before the download interrupted it.

7. Disconnect the PC from the EAS System by removing the null modem cable.

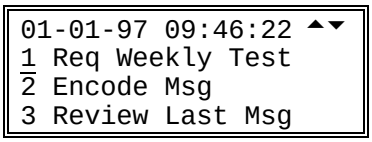
8. To cycle the power on the EAS System, simply disconnect and reconnect the power cable.

The EAS System will go through its regimen of self tests, then go to the following screen for several seconds:

```
E▫A▫S     Version 1.0
   Burk Technology

   (508) 486-0086  _
```

Pay special attention to the Version number. It should be the same one indicated in the initial PC screen display. If it is not the same, the new version has failed to load. Check the connections and try it again. If it still fails to load, you may contact Burk Technology's technical support department at the number below.

The EAS System will then display the **READY** menu (with the current date and time):



Your EAS System is now ready for use.
Keep the diskette as a system backup.

Should you have difficulty with your download, you may reach Burk Technology at (508) 486-0086. The Technical Support department can help you.

Finding Your COM Port:

If you're not sure which COM port you're using, and nobody else seems to know, you may run Microsoft Diagnostics, which will give you information about how your computer system is configured.

Microsoft Diagnostics can be accessed from any IBM-compatible computer that is running DOS 5.0 or higher--basically any DOS or compatible computer that has been made in the last several years. Simply get a DOS prompt (If you are in Windows, you may do this by selecting "MS-DOS Prompt" in the File Manager window). Key in the letters `msd` at the prompt, and Microsoft Diagnostics will come up automatically, and offer you several topics to choose from. You may select information about your COM port which tells you which port to use.

To find out about your COM port options from Windows 95, Select the Start button, the Settings menu, then Control Panel. In the Control Panel window, select the System icon. Along the top of the System window are four tabs. Select the one marked "Device Manager." The Device Manager will list your system components, including "Ports (COM & LPT)," near the bottom of the list. If you click once on the "+," Device Manager will tell you which COM ports are available for use.

Pinout Chart:

If necessary, a cable may be constructed using these pinouts.

For a 9-pin COM port:

DB-9F (to computer)	**DB9F (to EAS)**
2 RxD	3 TxD
3 TxD	2 RxD
5 GND	5 GND
8 CTS	7 RTS

For a 25-pin COM port:

DB-25F (to computer)	**DB9-F (to EAS)**
2 TxD	2 RxD
3 RxD	3 TxD
5 CTS	7 RTS
7 GND	5 GND

```
E▫A▫S     Version 1.0
   Burk Technology

   (508) 486-0086
```

```
01-01-97 09:46:22 ▲▼
1 Req Weekly Test
2 Encode Msg
3 Review Last Msg
4 Log Review
5 Monitor Audio Chan
6 Mode Select
7 System Setup
```

```
REQUIRED WEEKLY TEST
Last Transmission:
11-13-96 14:53
ESC=Abort   ENT=Send
```

```
SEND REQ WEEKLY TEST
Sending Header ...  _

ESC=Abort
```

```
SEND REQ WEEKLY TEST
Sending Header ...

Sending EOM ...     _
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Live Msg <030>
ESC=Abort   ENT=Done
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Live Msg <000>
Sending EOM ...
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Playing Voice ...
ESC=Abort
```

```
SEND REQ WEEKLY TEST
Sending Header ...
Playing Voice ...
Sending EOM ...
```

```
ENCODE MSG PASSWD
Enter User Passwd
        [***]
ESC=Abort ENT=Accept
```

```
EVENT: [    ]    ▲▼
EAN:Emerg Act Notifi
EAT:Emerg Act Termin
NIC:National Info Ce
```

```
NEW EVENT:     [   ]
Are you sure?

ESC=No       ENT=Yes
```

```
Location{01} [MA] ▲▼
25000:Entire MA
25001:Barnstable
25003:Berkshire
```

```
Location{01} [25000]
Entire MA
Subdiv? [0] [All   ]
More? ENT=Y, ESC=N
```

```
DURATION
+Time: 00:15_▲▼
Exp: 09-27-96/01:15
ESC=Rtn   ENT=Accept
```

```
VOICE MSG OPTION
1 Record Voice
2 Send w/ Live Audio
3 Send w/o Voice
```

```
RECORDING VOICE MSG
Time:  <120> sec
Level:|       □    |
ESC=Abort  ENT=Done
```

```
REVIEW VOICE MSG

Replay: Y=Yes
ESC=Redo    ENT=Send
```

```
REVIEW VOICE MSG

Replay In Progress
ESC=Abort
```

```
TRANSMIT NOW
```

```
ESC=Abort  ENT=Send
```

```
TRANSMIT NOW
Sending Header ...
                 _
ESC=Abort
```

```
TRANSMIT NOW
Sending Header ...
Playing Voice ...  _
Esc=Abort
```

```
TRANSMIT NOW
Sending Header ...
Playing Voice ...
Sending EOM ...    _
```

```
TRANSMIT NOW
Sending Header ...
Live Msg Time: <120>
ESC=Abort   ENT=Done
```

```
TRANSMIT NOW
Sending Header ...

Sending EOM ...    _
```

```
SEND MSG AGAIN?


ESC=No       ENT=Yes
```

```
REVIEW LAST MSG(   )
1 Review Msg
2 Send Msg
3 Delete Msg
```

```
ENCODED MSG
Emergency Action Not
Time: 11-22-96 13:25
Dur: 00 hrs, 15 min_
```

```
ENCODED MSG (ENT=OK)
National Weather
Service has issued
EMERGENCY ACTION   _
```

```
ALERT! (No Auto-Fwd)
```

```
Tornado Warning
Time: 11-21-96 18:03
Dur:  00 hrs, 15 min_
```

```
ALERT! (ENT=OK)
National Weather
Service has issued
TORNADO WARNING for_
```

```
REVIEW MSG
No Message

ESC=Rtn              _
```

```
TRANSMIT NOW


ESC=Abort   ENT=Send_
```

```
TRANSMIT NOW
Sending Header ...
                     _
ESC=Abort
```

```
TRANSMIT NOW
Sending Header ...

Sending EOM ...    _
```

```
SEND MSG AGAIN?


ESC=No       ENT=Yes
```

```
Delete Msg.
Are you sure?

ESC=No        ENT=Yes
```

```
LOG REVIEW
1 Receive Log
2 Transmit Log
3 Erase Logs
```

```
RECEIVE LOG          ▲▼
TOR   (1)
FLW   (2)
TOA   (3)
RWT   (4)
SVS   (5)
SVR   (6)
TOA   (7)
NPT   (8)
```

```
TOA   (9)
RWT   (10)
```

```
RECEIVE LOG
▲▼
TOR   (1) (Y=Review)
RWT   (2)
SVA   (3)
```

```
R-LOG MSG
Tornado Warning
Time: 11-21-96 18:03
Dur: 00 hrs, 15 min_
```

```
R-LOG MSG (ENT=OK)
National Weather
Service has issued
TORNADO WARNING for_
```

```
RECEIVE LOG      ▲▼
-
```

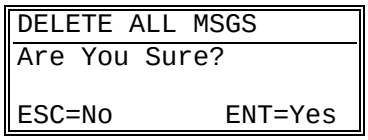
```
TRANSMIT LOG     ▲▼
TOR   (1)
RWT   (2)
SVA   (3)
BZW   (4)
SVS   (5)
HUA   (6)
HUW   (7)
RMT   (8)
RWT   (9)
SVR   (10)
```

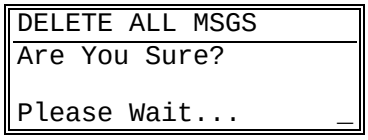
```
TRANSMIT LOG     ▲▼
TOR   (1) (Y=Review)
RWT   (2)
SVA   (3)
```

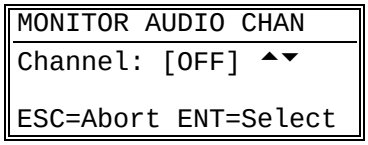
```
T-LOG MSG
Tornado Warning
Time: 04-07-96 06:05
Dur: 00 hrs, 15 min_
```

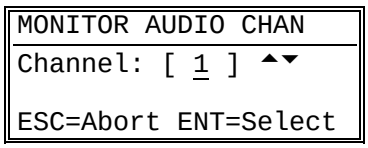
```
T-LOG MSG (ENT=OK)
National Weather
Service has issued
TORNADO WARNING for_
```

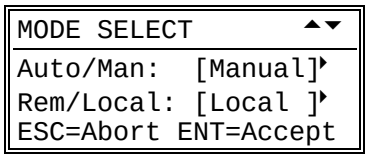
```
TRANSMIT LOG     ▲▼
-
```

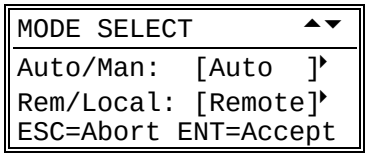

DELETE ALL MSGS
Are You Sure?
ESC=No ENT=Yes

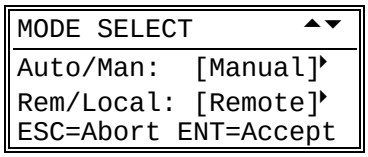

DELETE ALL MSGS
Are You Sure?
Please Wait... _

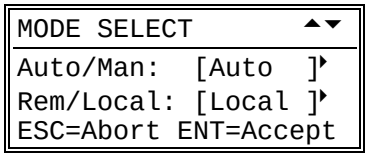

MONITOR AUDIO CHAN
Channel: [OFF]
ESC=Abort ENT=Select

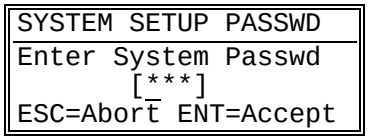

MONITOR AUDIO CHAN
Channel: [1]
ESC=Abort ENT=Select

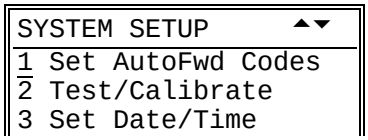

MODE SELECT
Auto/Man: [Manual]
Rem/Local: [Local]
ESC=Abort ENT=Accept


MODE SELECT
Auto/Man: [Auto]
Rem/Local: [Remote]
ESC=Abort ENT=Accept


MODE SELECT
Auto/Man: [Manual]
Rem/Local: [Remote]
ESC=Abort ENT=Accept


MODE SELECT
Auto/Man: [Auto]
Rem/Local: [Local]
ESC=Abort ENT=Accept


SYSTEM SETUP PASSWD
Enter System Passwd
[***]
ESC=Abort ENT=Accept


SYSTEM SETUP
1 Set AutoFwd Codes
2 Test/Calibrate
3 Set Date/Time

```
4 Set Station Info
5 Set Passwords
6 Set Tone Duration
7 Set Up RWT Voice
```

```
SET AUTOFWD CODES
1 Set AutoFwd Events
2 Set AutoFwd Locs
```

```
SET AUTOFWD EVENTS▲▼
EAN
EAT
NIC
```

```
SET AUTOFWD EVENTS▲▼
EAN  (Y=Select)
EAT
NIC
```

```
SET AUTOFWD EVENTS▲▼
EAN#
EAT
NIC
```

```
SET AUTOFWD EVENTS▲▼
EAN# (N=Remove)
EAT
NIC
```

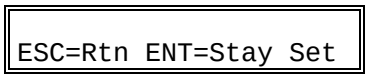
```
AutoFwdLoc{01} LST▲▼
(xxxxxx)     [025001]
[                   ]
ENT=Chk/LST,ESC=Rtn
```

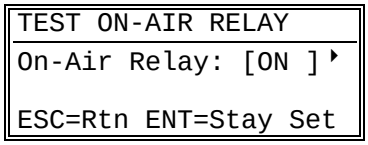
```
AutoFwdLoc{01} LST▲▼
(xxxxxx)     [025001]
[                   ]
◀=SET,▶=LST        _
```

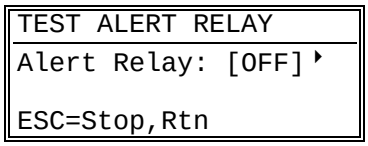
```
AutoFwdLoc{01} LST▲▼
(xxxxxx)     [025001]
[MA:Barnstable  ]
ESC=Set,LST= ▲▼
```

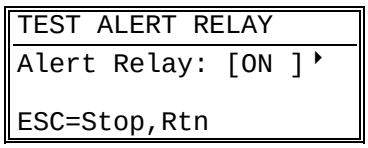
```
TEST/CALIBRATE   ▲▼
1 Test On-Air Relay
2 Test Alert Relay
3 Main Audio Output
4 Calibrate
```

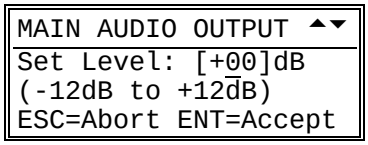
```
TEST ON-AIR RELAY
On-Air Relay: [OFF]▶
```

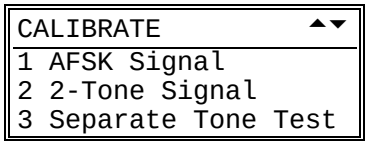

ESC=Rtn ENT=Stay Set

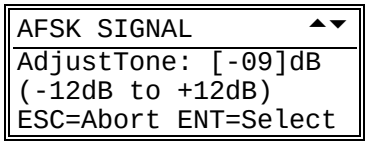

TEST ON-AIR RELAY
On-Air Relay: [ON]
ESC=Rtn ENT=Stay Set

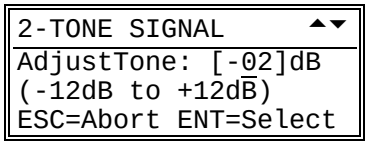

TEST ALERT RELAY
Alert Relay: [OFF]
ESC=Stop,Rtn

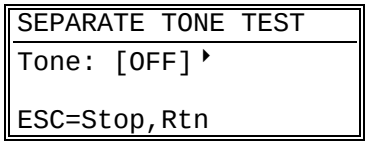

TEST ALERT RELAY
Alert Relay: [ON]
ESC=Stop,Rtn

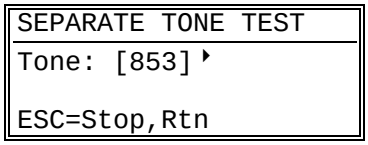

MAIN AUDIO OUTPUT
Set Level: [+00]dB
(-12dB to +12dB)
ESC=Abort ENT=Accept

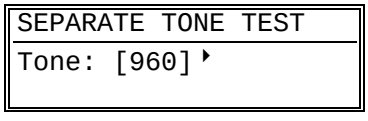

CALIBRATE
1 AFSK Signal
2 2-Tone Signal
3 Separate Tone Test


AFSK SIGNAL
AdjustTone: [-09]dB
(-12dB to +12dB)
ESC=Abort ENT=Select


2-TONE SIGNAL
AdjustTone: [-02]dB
(-12dB to +12dB)
ESC=Abort ENT=Select


SEPARATE TONE TEST
Tone: [OFF]
ESC=Stop,Rtn


SEPARATE TONE TEST
Tone: [853]
ESC=Stop,Rtn


SEPARATE TONE TEST
Tone: [960]

```
ESC=Stop,Rtn
```

```
SET DATE/TIME
1 Current Date/Time
2 Set Time Zone
3 Set DST Flag
```

```
SET DATE/TIME      ◂▸
11-21-96  15:18 ▴▾
mm-dd-yy  hh:mm
ESC=Abort ENT=Accept
```

```
SET TIME ZONE
Time Zone: [05] ▴▾
Zone Range: (5-16)
ESC=Abort ENT=Accept
```

```
SET DST FLAG
DST: [ON ]▸

ESC=Abort ENT=Accept
```

```
SET DST FLAG
DST: [OFF]▸

ESC=Abort ENT=Accept
```

```
SET STATION INFO
1 Set Sta ORG
2 Set Sta Loc
3 Set Station ID
```

```
SET STA ORG CODE
ORG: [WXR] ▴▾
[Nation.Weather Ser]
ESC=Abort ENT=Accept
```

```
SET STA ORG CODE
ORG: [CIV] ▴▾
[Civil Authorities ]
ESC=Abort ENT=Accept
```

```
SET STA ORG CODE
ORG: [EAS] ▴▾
[Broadcast Station ]
ESC=Abort ENT=Accept
```

```
SET STA ORG CODE
ORG: [EAN] ▴▾
[Emerg.Act.Notif.NW]
ESC=Abort ENT=Accept
```

```
SET STA ORG CODE
ORG: [PEP] ▲▼
[Primary Entry Pt. ]
ESC=Abort ENT=Accept
```

```
SET STA LOC CODE
FIPS: [36001]
[NY:Albany      ]
ESC=Abort ENT=Accept
```

```
SET STA LOC CODE
FIPS: [36001]
[NY:Albany      ]
  Y=Select, N=Ignore
```

```
SET STA LOC CODE
FIPS: [36001]
[NY:Albany      ]
ESC=Abort ENT=Accept
```

```
SET STA LOC CODE
FIPS: [36001]
[NY:Albany      ]
  Y=Select, N=Ignore
```

```
SET STA ID
ID: [BURK/TOP]

ESC=Abort ENT=Accept
```

```
SET PASSWORDS
1 Set System Passwd
2 Set User Passwd
```

```
SET SYSTEM PASSWORD
Enter Password:
        [***]
ESC=Abort ENT=Accept
```

```
SET SYSTEM PASSWORD
Enter Password:
        [###]
 Y=Accept, N=Reject _
```

```
SET SYSTEM PASSWORD
Enter Password:
        [###]
ESC=Abort ENT=Accept
```

```
SET USER PASSWORD
Enter Password:
        [***]
```

```
ESC=Abort ENT=Accept
```

```
SET USER PASSWORD
Enter Password:
        [###]
 Y=Accept, N=Reject _
```

```
SET USER PASSWORD
Enter Password:
        [###]
ESC=Abort ENT=Accept
```

```
TONE DURATION (0-25)
Duration: 08 sec. ▲▼

ESC=Abort ENT=Accept
```

```
SET UP RWT VOICE
1*Use No RWT Voice
2 Use Live RWT Voice
3 Use Recorded Voice
4 Record RWT VOICE
```

```
RECORD RWT VOICE


ESC=No       ENT=Yes
```

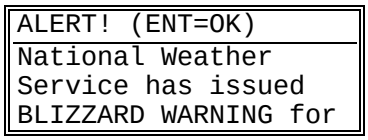
```
RECORD RWT VOICE


Please Wait ...     _
```

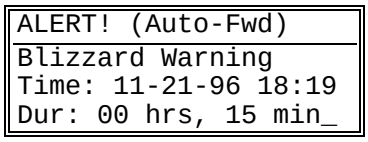
```
RECORDING RWT VOICE
Time:  <030> sec
Level:|       □    |
ESC=Abort  ENT=Done
```

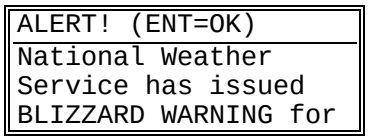
```
REVIEW RWT VOICE MSG

Replay:  Y=Yes
ESC=Redo  ENT=Accept
```

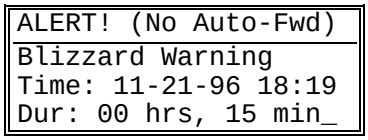
```
REVIEW RWT VOICE MSG

Replay in Progress
ESC=Stop           _
```

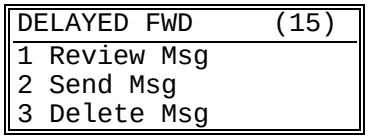
```
ALERT! (Del-Fwd)
Blizzard Warning
Time: 11-21-96 18:19
Dur: 00 hrs, 15 min_
```


ALERT! (ENT=OK)
National Weather
Service has issued
BLIZZARD WARNING for


ALERT! (Auto-Fwd)
Blizzard Warning
Time: 11-21-96 18:19
Dur: 00 hrs, 15 min_


ALERT! (ENT=OK)
National Weather
Service has issued
BLIZZARD WARNING for


ALERT! (No Auto-Fwd)
Blizzard Warning
Time: 11-21-96 18:19
Dur: 00 hrs, 15 min_


DELAYED FWD (15)
1 Review Msg
2 Send Msg
3 Delete Msg